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ORIGINAL ARTICLES.

OBSERVATIONS ON THE DIURETIC INFLUENCE OF COCAINE.

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In some researches on cocaine, especially its hypodermic employ, made at the Pennsylvania Hospital, and subsequently published by one of us,¹ the fact was noticed that cocaine seems to increase the flow of urine. During the past winter this matter has been more particularly studied in the wards of the Hospital, and with conclusive results. The urine was examined in upward of twenty cases in which the patients were taking cocaine for one purpose or another, and, with a single exception, the flow of urine was greater; in some instances, indeed, it became a matter of much inconvenience to the patient by obliging him to get up at night. But as some of the patients were also taking other medicines, or there were in them special morbid states which might make the inferences doubtful, we selected eleven cases for study in which the urinary secretion had been watched for some time and found to vary but little, and to which during the administration of cocaine, as well as for a day or two before, no other remedy was given.

In the subjoined Table I. can be seen the result in eight of the eleven cases. They represented persons

sent abnormal conditions will be presently specially noted.

In the three remaining cases out of the eleven, the quantity of urine was somewhat increased by one grain of cocaine three times daily, but not sufficiently to give a decided result.

Now of the cases tabulated three, it will be seen, had Bright's disease of the kidney, in Case IV. of the form of chronic parenchymatous nephritis attended with considerable general dropsy. Yet this was not entirely due to the renal lesion; for there existed also a mitral and aortic disease, with a heart of only moderate strength. The increase of the urine was very striking and rapid; and the dropsical symptoms were much relieved.

The albumen in Case V. was small in quantity, and met with, as it was, in a healthy-looking young sailor just from the sea, was thought to be due to a mere temporary congestion of the kidneys. In fact, he stated that, for as long as he could remember, there were often periods in which he passed a very small amount of urine. He proved highly susceptible to the action of cocaine. One-half grain, hypodermically administered, produced on several occasions headache, nausea, and vomiting. But the diuretic influence of the drug was always most striking, and persisted for days after it was withdrawn. Table II., made out after one of his attacks of very scanty urine, speaks for itself.

It may be added that this man was much benefited, and left the hospital with but a slight renal affection remaining.

An interesting question arising in connection with this, as well as with the other cases of albuminuria,

TABLE I.—NUMBER OF OUNCES OF URINE PASSED BEFORE AND WHILE TAKING COCAINE.

Case	I.	Urine passed before taking cocaine.	Amount of cocaine administered.	Urine passed while taking cocaine.			
				1st day.	2d day.	3d day.	4th day.
	II.	28 ounces.	gr. $\frac{1}{2}$, twice daily by mouth.	32 oz.	32 oz.		
	III.	48 "	gr. $\frac{1}{2}$, thrice " " "	80 "	60 "	76 oz.	
	IV.	64 " (trace of albumen).	gr. $\frac{1}{2}$, " " " "	76 "	72 "		
		48 " (much albumen, epithelial casts).	gr. i. thrice daily, hypoderm.	80 "	80 "	80 "	96 oz.
	V.	24 " (trace of albumen).	gr. $\frac{1}{2}$, once daily, hypoderm.	48 "	64 "	48 "	
	VI.	40 "	gr. j. thrice daily, by mouth.	96 "	80 "	80 "	80 "
	VII.	49 "	gr. j. " " " "	90 "	52 "	96 "	90 "
	VIII.	48 "	gr. j. " " " "	32 "	20 "	24 "	16 "

wholly free from any organic disease; or—though in one instance only—with a cardiac lesion; or with Bright's disease of the kidneys: a varying list purposely selected, and of which those who pre-

is, whether the amount of albumen is diminished by the administration of cocaine; and whether we are likely to find in cocaine, irrespective of its diuretic influence, a remedy of value in Bright's disease. It does not so seem; for, in the cases in which we examined into the matter, the relative amount of albumen in a given quantity of urine was apparently

¹ Transactions of College of Physicians of Philadelphia: THE MEDICAL NEWS, December 13, 1884.

TABLE II.—NUMBER OF OUNCES OF URINE PASSED IN TWENTY-FOUR HOURS.

	1st day. No cocaine administered.	2d day. 1 grain cocaine by mouth.	3d day. ½ grain cocaine by mouth.	4th day. No cocaine.	5th day. No cocaine.	6th day. No cocaine.
Case V.	14 ounces.	88 ounces.	72 ounces.	72 ounces.	64 ounces.	24 ounces.

unchanged by the cocaine. Indeed, it appeared as if the whole amount passed in twenty-four hours with the increased secretion of urine was generally larger. Certainly in the chronic cases of the disease, therefore, we have rather a contraindication for the employ of cocaine, except for temporary purposes.

Another interesting question is, what elements of the urine are excreted in larger amounts under the diuretic influence of the cocaine. Is it simply the water which is increased? We think not; since, notwithstanding the larger flow, the specific gravity is but slightly altered. Thus, in Case V., in spite of the extraordinarily augmented secretion, the specific gravity remained much the same; it varied from 1.020 to 1.023 during the observations, the precaution having been taken to remove the albumen by boiling and filtering. We believe that the solids are excreted in larger amounts; we have found copious deposits of urates. Whether the other ingredients of the urine, and especially the urea, are excreted in more considerable quantities we have not yet determined.

Cocaine, as can be easily observed by sphygmographic tracings, undoubtedly raises arterial tension. Is not this largely the explanation of its diuretic action? Perhaps too great a tension may afford the explanation of its occasional failure as a diuretic; or rather of its having even the reverse effect.

Thus, Case VIII., taking one grain three times daily by the mouth, suffered from headache and violent attacks of intestinal colic; the face was flushed, the pulse full and strong. The quantity of urine was much diminished; the specific gravity was raised from 1.020 to 1.025, and there was a very large deposit of urates.

Is the diuretic action of cocaine persistent, or does it stop immediately upon the withdrawal of the remedy? We found that it did not; that, indeed, the urinary flow was apt to remain freer for some time, and then appeared for a certain period to be more easily influenced by other diuretics than before. How far we can make use of cocaine for augmenting the excretion of special solid ingredients of the urine, must remain undetermined until this part of the inquiry has been more fully worked out.

The therapeutical application of these observations is self-evident. Irrespective of its diuretic influence, we ought to obtain advantage from cocaine in instances of weak heart with dropsy; and, so far as we have been able to pursue this line of investigation, such is actually the case. In uræmia, with scanty secretion of urine, the remedy is also well worth a trial.

BACTERIOLOGICAL NOTES.

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CLASSIFICATION.—Rapid progress has been made in our knowledge of the bacteria since Koch has given us a ready method of isolating species which are associated, by means of "plate cultures," and of recognizing differences as to mode of growth, color, etc., by cultivation in solid media. But this progress has rather increased than diminished the difficulties connected with an attempt to classify these microorganisms.

It is but a few years since Billroth maintained that the bacteria, with the exception of the spiral forms, belong to a single species, his *coccobacteria septica*. And the distinguished German botanist, Nägeli, was of the opinion that altogether too many species had been distinguished. He says:

"I am rather inclined to suppose that there exists among them a small number of species, which have little in common with the genera and species admitted to-day, and of which each runs through a cycle of determined forms sufficiently numerous. Each of the veritable species of schizomycetes is not limited to presenting itself under the different forms of *micrococcus*, *bacterium*, *vibrio*, and *spirillum*, but can also show itself as the agent of acidification of milk, of putrefaction, and as the agent producing several maladies."¹

Recent researches do not sustain this view. On the contrary, it has been demonstrated that too few species were distinguished by the earlier investigators, and the result of more extended studies, by the exact methods devised by Koch, has been to show that the bacterial flora is extremely rich in species, and that the contrary opinion was based on imperfect knowledge.

In a laboratory handbook recently published in Germany, Eisenberg, one of Koch's pupils, gives a list of species which are now, or have been, in cultivation in the laboratory of the distinguished German bacteriologist, and which may be distinguished by constant differences in form, color, pathogenic power, or mode of growth in culture media. The microorganisms included in this list are classified as follows:

I. NOT PATHOGENIC: A, *liquefy gelatine*; 1, *micrococcus prodigiosus*; 2, *bacillus indicus* (Koch); 3, orange sarcina; 4, violet bacillus from water; 5, red bacillus from water; 6, greenish-yellow bacillus from water; 7, gas-producing bacillus from water; 8, liquefying bacillus from water; 9, bacillus sub-

¹ Quoted from Magnin, *Les Bacteries*, 1878, p. 48.

tilis; 10, *wurtzel* bacillus from earth; 11, potato bacillus; 12, bacillus megaterium (*de Bary*); 13, bacillus butyricus; 14, Miller's epsilon bacillus. B, *do not liquefy gelatine*: 15, yellow sarcina; 16, white sarcina; 17, greenish-yellow bacillus from water; 18, fluorescent bacillus from water; 19, white bacillus from water; 20, bacillus syncyanum—blue milk (*Hüppe*); 21, bacillus of lactic acid fermentation (*Hüppe*); 22, bacillus resembling *B. subtilis* No. 1, from feces (*Bienstock*); 23, bacillus resembling *B. subtilis* No. 2, from feces (*Bienstock*); 24, bacillus of albumen-decomposition, from feces (*Bienstock*).

II. PATHOGENIC BACTERIA: A, cultivated external to the bodies of animals; 25, cholera Asiatica (*Koch*, comma-bacillus); 26, Finkler-Prior's bacillus; 27, cheese spirillum (*Dencke*); 28, Brieger's bacillus; 29, Emmerich's bacillus; 30, diphtheria bacillus (*Löffler*); 31, gonococcus (*Bumm*); 32, bacillus of fowl cholera (*Pasteur*); 33, bacillus of rabbit septicæmia (*Koch*); 34, bacillus of malignant œdema—vibrio septique (*Hesse*); 35, bacillus of mouse septicæmia (*Koch*); 36, bacillus of swine-plague—Schweinerothlauf (*Shuts*); 37, bacillus resembling that of mouse septicæmia, from feces (*Bienstock*); 38, bacillus anthracis; 39, pneumonia coccus (*Friedländer*); 40, coccus resembling the pneumonia coccus, from pus (*Passet*); 41, micrococcus of osteomyelitis (*Becker*); 42, staphylococcus pyogenes aureus; 43, staph. pyogen. citreus; 44, staph. pyogen. albus; 45, mic. pyogen. tenuis; 46, staph. cereus albus; 47, staph. cereus flavus; 48, bacillus saprogenes I.; 49, b. saprogen. II.; 50, b. saprogen. III.; 51, B. pyogen. foetidus; 52, streptococcus pyogenes (41–52 described by *Rosenbach* and by *Passet*); 53, streptococcus erysipielatis (*Fehleisen*); 54, bacillus pyocyanus—green pus; 55, bacillus of glands (*Löffler-Schüts*); 56, tetanus bacillus (*Nicolaier*); 57, micrococcus tetragonus (*Koch, Gaffky*); 58, tubercle bacillus (*Koch*); 59, bacillus of typhoid fever (*Gaffky*); 60, bacillus alvei—foul brood in bees (*W. Cheyne*); 61, b. of vagus pneumonia (*Gens Schon*).

To this list are added the following which have not yet been cultivated; 62, lepra bacillus (*Armauer-Hansen*); 63, bacillus of rhinoscleroma (*Frisch*); 64, spirochæte obermeieri, relapsing fever; 65, syphilis bacillus (*Lustgarten*).

An inspection of this list shows that many of the species recognized by Cohn, Schroeter, and other authors, who attempted to classify these minute organisms a few years since, are either ignored or appear under new names. Thus, we look in vain for the chromogenic micrococci described by Cohn, *M. luteus*, *M. chlorinous*, *M. aurantiacus*, *M. cyaneus*, and *M. fulvus*. Their omission is doubtless due to the fact that the characters given by the authors who named them are not considered sufficiently distinctive for their recognition. *M. luteus*, for example, is described by Cohn as a yellow gelatinous mass found upon potatoes. But we now know several distinct species of *Micrococcus* which have a yellow color and which grow readily upon potatoes. We notice, too, that several species described by authors outside of Germany, do not receive recognition.

We do not find the bacillus of symptomatic anthrax, to the study of which Arloing, Comeoin, and Thomas, have given so much time, or the micrococcus to which the present writer has given the name of *M. Pasteuri*. Evidently, the list is far from being complete, so far as known species are concerned, and there is every reason to believe that it includes but a small proportion of the species to be found in nature.

No doubt future investigations will demonstrate the existence of a most extensive bacterial flora, as rich in species perhaps, as the DIATOMACEÆ, or as one of the orders of microscopic fungi—the CONIOMYCETES, for example. And, as in the case of the better known microscopic plants named, it is probable that we shall find that certain species are widely distributed, while others have a limited geographical range. The bacterial flora of the tropics will probably be found to be especially rich in species, and when the endemic diseases of tropical climates—diarrhoeas, dysenteries, fevers, etc., have been carefully studied, by modern methods, there is good reason to hope that the list of recognized pathogenic organisms will be considerably extended.

Many bacteriologists think that for the present we cannot do better than to accept, with some modifications, the classification, based upon morphological characters, which Cohn proposed some years since. This author divided the bacteria into four groups, viz.:

1. The *Sphærobacteria* (spherical bacteria).
2. The *Microbacteria* (short rods).
3. The *Desmobacteria* (straight filaments).
4. The *Spirobacteria* (spiral filaments).

Under the heading, sphærobacteria, Cohn placed a single genus, *Micrococcus*; under the second heading, a single genus, *Bacterium*; under the third heading, two genera, *Bacillus* and *Vibrio*; while the fourth heading included the genera *Spirillum* and *Spirochæte*. The utility of maintaining the second group—Microbacteria—may be questioned. Dr. Koch and his pupils seem to have banished the term *Bacterium*, as a generic name, from their nomenclature. For the Berlin school of bacteriologists, there is no half-way morphological station between spherical organisms—micrococci—and rod-shaped organisms—bacilli. The genus, *Bacterium*, of Cohn is no longer recognized by them, and all rod-shaped organisms are spoken of as bacilli. We have long since been convinced that there is no well-defined dividing line between Cohn's genus *Bacterium* and his genus *Bacillus*; but it must be admitted that the line between the micrococci and bacilli on the one hand, and the bacilli and spirilla on the other, is hardly more definite. There is no hesitation in calling a spherical organism which multiplies only by binary division, a micrococcus, and a rod-shaped organism which forms endogenous spores, a bacillus. But there are certain organisms which are neither distinctly spherical, nor distinctly rod-shaped, but rather of an oval form, and which, so far as we know, do not multiply in any other way than by binary division. Shall we speak of these as oval micrococci, or shall we call them bacilli? If the oval form is only apparent when the organism is in

active multiplication, and the typical spherical form is seen to prevail when such active multiplication ceases, there should be no hesitation in calling the organism a micrococcus, for micrococci necessarily assume a more or less elongated form just before they undergo binary division. When, however, the separate elements are of a long oval form after active multiplication has ceased, if we adopt the nomenclature of the Berlin school, we must speak of the organism as a bacillus. According to this nomenclature, Pasteur's "micrococcus" of fowl cholera, and Friedländer's "micrococcus" of pneumonia, become bacilli. There is no evidence that either of these organisms forms spores, and the fact that by a strict adherence to a morphological system of classification they are grouped with spore-forming bacilli, such as *B. anthracis* and *B. subtilis*, shows how artificial this system of classification is. The difficulties into which it leads us are further shown by the impossibility of drawing a sharp line at the other end of the scale, between the bacilli and the spirilla. Thus, Koch and his pupils do not hesitate to speak of curved or "comma-shaped" bacilli, although the so-called "commas" seem to represent a stage in the life-cycle of a spiral organism.

Zopf has attempted to give us a more natural system of classification and has divided the cocci—COCCACEÆ—into five genera, viz.: *Streptococcus*, *Micrococcus*, *Merismopedia*, *Sarcina*, and *Ascococcus*. A second group—BACTERIACEÆ—is made to include the following genera: *Bacterium*, *Spirillum*, *Vibrio*, *Leuconostoc*, *Bacillus*, *Clostridium*.¹

There can be no question as to the utility of this classification if the characters upon which Zopf depends in establishing his genera are truly distinctive. Of this, we are not entirely convinced, and it will be necessary thoroughly to test Zopf's generic characters by Koch's methods of culture before we can finally accept his classification. Thus, the characters which distinguish the five genera of the COCCACEÆ depend upon the mode of division and the resulting arrangement of the cocci in chains, in groups of four, in cubical "packets," in irregular masses, or in gelatinous pellicles. Division in one direction only, and the formation of chains—torula-chains of Cohn—are the distinguishing characters of the genus *Streptococcus*; division in two directions, forming groups of four elements in a single plane is made the generic character of *Merismopedia*. Division in three directions, forming cubical groups of eight elements, distinguishes *Sarcina*.

The genus *Micrococcus* is distinguished by the formation of irregular masses, or colonies, resulting from division in one direction, without subsequent cohesion of the cocci, as occurs in *Streptococcus*.

It is well known to bacteriologists that all of these modes of division, and the resulting group-forms, occur among the cocci, and the only question is whether the same coccus may not, at different times, and under different circumstances, form chaplets, by division in one direction, or groups of four by divi-

sion in two directions, or irregular masses by the non-adhesion of the individual cocci after fission.

The writer's observations have convinced him that division in one direction is a constant character in some instances at least, and that in other cases the formation of tetrads by division in two directions is a well-established habit of growth. On the other hand, I have frequently observed tetrads and linear chains of four elements in the same culture, believed to be pure, and have been led to conclude that, in certain cases, at least, binary division having resulted in the formation of a pair, each element of this pair may again divide in the same direction, forming a linear group of four, or that each element of the pair may divide in a line at a right angle with the first line of division, forming a group of four, or tetrad. But I have not in these cases seen the linear arrangement extend beyond the formation of chains consisting of four elements, and am not disposed to insist upon this observation as a fatal objection to Zopf's generic characters.

The genus *Sarcina* has long since been recognized by botanists, and seems to be sufficiently well characterized by the mode of division in three directions which results in the formation of cubical masses containing eight elements, or a multiple thereof.

With reference to Zopf's genus *Micrococcus*, as distinguished from *Streptococcus*, it seems to me that further observations are necessary before we can accept the characters given as generic. It is not certain that cocci, which are usually found in chains, when in active growth, do not, under certain circumstances, form irregular masses in which the several elements are disunited.

I shall not attempt at the present time to discuss Zopf's second group—BACTERIACEÆ—but would remark that the classification proposed by this author seems to me to possess decided advantages over that of Cohn and to be worthy of adoption by bacteriologists, provisionally, at least; subject, of course, to such modifications as may be required by a more precise and extended knowledge of these minute organisms.

The attempt made by Cohn to divide the micrococci into three physiological groups—*Chromogenes*, *Zymogenes*, and *Pathogenes*—can no longer be sustained. We know now that some of the chromogenic micrococci are pathogenic, and the fact that a certain species has been proved to be pathogenic with reference to certain animals does not exclude it from the list of organisms which may give rise to the production of special chemical products by "fermentation"—*Zymogenes*.

We would remark, also, with reference to the division which Eisenberg makes, in the list which we have copied from his recent work, into "pathogenic" and "non-pathogenic" bacteria, that this classification simply represents the present state of knowledge. While we have satisfactory experimental evidence that many of the organisms included under the one heading have pathogenic power, this evidence is wanting for others; and we cannot assert positively that the organisms included under the other heading are non-pathogenic, for all animals and under all circumstances.

¹ It is not our intention to discuss *in extenso* the subject of classification, and for our present purpose it is unnecessary to refer to the two additional groups of Zopf, viz.: *Leptotrichæ*, containing four genera, and *Cladothriceæ*, containing a single genus.

SPECIES.—As among the higher plants, a *constant* difference in form, or in mode of development, suffices among these lowly plants to distinguish one species from another. But we have learned that beyond this there are essential and constant differences by which we may distinguish between organisms which have the same morphological characters. A constant difference in color, or in mode of growth in culture media, or in pathogenic power, suffices to show that two organisms which have the same form are not identical. For the pathologist it matters little whether these characters are conceded to have *specific* value or not. It is well known that wide differences of opinion exist among botanists as to the specific value of similar characters among higher plants, and the question whether two plants which resemble each other, and yet present differences as to color of blossom, vigor of growth, etc., are distinct species, or simply varieties of a single species, is often a vexed one.

We do know, however, that among cultivated plants very wide differences of this kind may be the direct result of artificial selection and cultivation; and it is now generally conceded that similar differences in allied species, and genera, have resulted in the course of time from natural selection. There is, therefore, a genetic relationship, near or remote, between species and genera as well as between varieties, and it is evident that any system of classification is essentially artificial; for nature is continuous and the genetic and specific pigeon-holes of the systematic botanists are simply a matter of convenience.

Among the higher plants artificial varieties are propagated by budding, and there is no certainty that the special features which characterize the variety—color of leaf or blossom, form and flavor of fruit, vigor of growth, etc.—will be propagated by planting seed. Among the minute plants at present under consideration, the micrococci—which seem to be at the very foot of the scale of living organisms, budding—binary division—is the sole mode of multiplication. No doubt these lowly plants are subject to the general laws which govern natural selection, and no doubt modifications may occur in their physiological characters as a result of the continuous action of these laws. Whether such modifications resulting from changes in environment—nature of pabulum, temperature, influence of associated organisms, etc.—may be induced within a comparatively brief period of time, and whether physiological, and morphological characters are more or less constant than is the case among higher plants, is a question of prime importance from many points of view.

Owing to the very rapid multiplication which occurs under favorable circumstances, a single micrococcus within a few days becomes the parent of innumerable successive generations; whereas one of the higher plants, which produces seed but once a year, would require a very extended period of time to produce a similar series. If the micrococcus is equally subject to modifying influences, it is evident that the time required to establish a variety may be very much less than among higher plants. This suggests the possibility that pathogenic varieties may

be developed from usually harmless organisms as a result of exceptional circumstances.

There are certain pathogenic organisms—*e. g.*, the tubercle bacillus, and the spirillum of relapsing fever—which, there is reason to believe, are at present restricted to a parasitic mode of existence—*i. e.*, the conditions necessary for their propagation do not exist in nature external to the bodies of living animals. But we must admit that these parasites are the direct descendants of organisms which at one time were able to exist independently of a living host, or we are reduced to the necessity of assuming that the parasites came into existence with their present characters subsequently to the host which is at present necessary for their continued existence, and apparently for no other purpose than to produce the specific diseases which have been demonstrated to be due to their presence. But, while we can scarcely doubt that at some time in the past these and other parasitic organisms which give rise to specific infectious diseases originated from microorganisms capable of leading an independent existence, it does not follow that the development of specific pathogenic power, associated with an exclusively parasitic mode of existence, is an event of every-day occurrence.

No one at the present day believes in the *de novo* origin of the specific eruptive fevers, but there are still a few physicians who maintain that cholera, and yellow fever, and relapsing fever may occur, outside of the region of endemic prevalence, as a result of local conditions, and quite independently of the importation of infectious material. This view was formerly held by a majority of the profession, but the progress of knowledge, and more exact methods of observation, make it appear quite certain that, however these diseases may have originated in the first instance, their prevalence in a new locality at the present day depends primarily upon the introduction of a living germ from a foreign source, and secondarily upon local conditions favorable to the development of this particular pathogenic organism.

Is this also true as regards the so-called hospital diseases, erysipelas, septicæmia, puerperal fever, hospital gangrene? We have abundant evidence that these diseases are propagated from case to case by inoculation with infectious material conveyed upon sponges, instruments, the hands of attendants, etc. But how about the first cases in new hospitals, or what shall we say of the isolated cases of puerperal fever, septicæmia, and erysipelas which occur in localities remote from any apparent source of infection? We may suppose (*a*) that in these cases also the puerperal woman or the individual suffering from a compound fracture, although far removed from any recognized case of puerperal fever or of septicæmia, has been infected by material transferred through some unknown channel to the genital tract or to the suppurating wound; or we may suppose (*b*) that some one of the organisms constantly or occasionally found in the secretions of the vagina, or in the purulent discharge from an open wound, has developed pathogenic power in the abundant pabulum furnished by these secretions, and has been able to overcome the vital resisting power of the tissues, and thus to produce general blood infection, or local

inflammatory and necrotic changes: or, finally, we may suppose (c) that the pathogenic organisms which give rise to the diseases named are widely distributed, and always at hand ready to produce their specific effects when the puerperal woman or wounded individual is vulnerable, by reason of reduced resisting power resulting from loss of blood, profuse suppuration, or poisoning by the chemical products of putrefactive decomposition.

It would be premature to attempt to decide which of these suppositions is correct, and the writer must content himself at present with a simple statement of the question. It may be remarked, however, that the experimental evidence available gives some support to each of the hypotheses suggested. Thus the various pathogenic organisms now in cultivation in the laboratories of bacteriologists seem to retain their specific pathogenic properties through any number of successive cultures, and there is no satisfactory experimental evidence to show that a harmless micro-organism may by special treatment develop pathogenic power. On the other hand, we have evidence that notable differences in pathogenic power, of a more or less permanent character, may be obtained by special methods of treatment. Thus, Pasteur has in constant cultivation in his laboratory three distinct pathogenic varieties of the anthrax bacillus, unattenuated, *premier vaccin*, and *deuxieme vaccin*.

The question whether differences in the color of pigment produced, or in pathogenic power, or in temperature most favorable to development, or in mode of growth in culture media, can be accepted as distinguishing specific characters, in the botanical sense of the word, is one which I am not disposed to discuss. From a practical point of view, it is a matter of secondary importance. The main object of bacteriologists at present should be to make themselves familiar with the bacterial parasites which infest the bodies of man and the lower animals in health and in disease, and with the bacterial flora of stagnant water, putrefying infusions, etc.; to differentiate species or varieties which, by Koch's admirable methods, can be distinguished one from the other, and carefully record the differences which may be observed in their mode of growth, color, pathogenic power, and other physiological characters, together with the morphology of their life-cycle. The botanical questions as to near or remote relationship may well be left for the future, if, indeed, they are capable of being solved at all.

(To be concluded.)

EXTIRPATION OF INGUINAL GLANDS.

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In a recent paper by the writer ("Venereal Bubo," etc., THE MEDICAL NEWS, Dec. 5, 1885), the advisability of extirpating the inguinal glands, with a view to shorten the duration of treatment for venereal bubo, was referred to and condemned as a general procedure, for the reasons of possible injury to important adjacent vessels or of the burrowing or ab-

sorption of pus or septic matter, with septicæmia in consequence. Since writing this paper, two papers have appeared reporting disastrous results from the operation. One, by Dr. W. B. Platt, F.R.C.S. ("Gangrene of the Scrotum following Excision of the Inguinal Glands: an Acute Reflex Trophic Lesion," THE MEDICAL NEWS, Nov. 14, 1885), narrating three cases, in each of which gangrene of a small portion of the skin of the scrotum occurred a few days after the operation, and due, in the author's opinion, to irritation of the ileo-inguinal or genito-crural nerve. Drs. Randolph Winslow and Wm. J. Jones ("Note on Occurrence of Gangrene of Scrotum," etc., *Annals of Surgery*, Jan. 1886) report four cases—Case II. being Case I. in Dr. Platt's paper, and Case IV. being Case II.—of gangrene of the scrotum following extirpation of the inguinal glands. These authors consider that "different factors may have been operative in the individual cases;" but whether the gangrene "was due to obstruction of the venous circulation, or to trophic nerve lesion, as is held by Dr. Platt, is not clear."

All of these cases occurred in the Bay View Hospital, Baltimore, except the first of Dr. Platt's, which occurred in the Boston City Hospital. In this latter case, an indurated lump was felt on the preputial margin: a reference might here be made to the probability of this being the result of a hard chancre, particularly as the glands had been indurated for two years, and the tendency to gangrene in syphilitic cases is not infrequent; even recently, as eminent a syphilographer as Jonathan Hutchinson has ventured the sweeping suggestion that all cases of hospital gangrene are due to syphilitic phagedæna ("Lettsomian Lectures: Some Moot Points in the Natural History of Syphilis," *British Med. Journal*, Jan. 9, 1886). Of the cases at Bay View Hospital, in one erysipelas was in the ward at the same time. All the operations were carefully performed with antiseptic precautions.

Neither of the papers gives statistics of uncomplicated operations; and if the theory of trophic reflex lesion be accepted, gangrene of the scrotum should, in the majority of cases at least, follow extirpation of the inguinal glands.

The following uncomplicated cases of this operation are reported as a contribution to the study of the subject:

CASE I.—J. S., white, male, aged twenty-three; admitted to the U. S. Marine Hospital, Memphis, for a large indurated bubo of the left groin, which had been developing for some weeks. Denied recent gonorrhœa or venereal sore. August 14, 1885, he was anesthetized, the groin washed with a four per cent. bichloride of mercury solution, an incision made in the skin parallel with the fold of the groin, and the gland torn out with the fingers. A few small bleeding points were closed by torsion. As the wound was deep and promised to favor the secretion of pus, no sutures were introduced. The groin was washed out every other day with a warm bichloride solution, iodoform dressing applied, and healing by granulation progressed favorably, the patient being discharged September 1st. The removed gland was filled with small foci of pus.

CASE II.—J. P., aged nineteen, negro, had a venereal sore in August, 1885. About September 15th, swelling of the right inguinal glands commenced. September 22d, the prepuce was slit on account of extensive condyloma, and the glandular mass was removed from the groin. The procedure was identical with that detailed above, except the use of sutures to close the wound. A troublesome hemorrhage occurred a few hours after recovery from anæsthesia, necessitating the removal of the sutures and exposing the wound to air and hot washing. October 1st, a secondary macular eruption appeared. This detained him in the hospital some days longer than the wound required. Discharged October 14th.

CASE III.—C. H., mulatto, aged twenty-three, admitted to the hospital for enlargement of the glands of each groin. The patient claimed he had never had venereal disease, and a careful examination failed to show any evidence of a cicatrix on the penis, nor was there evidence of tuberculosis. The glandular mass was injected first with cocaine solution, and then with a ten per cent. carbolic acid solution. This was done twice within four days. As fluctuation was detected, a few days later, in the mass in the right groin, it was locally anæsthetized and lanced, a small quantity of pus escaping. Instead of diminishing, the mass increased in size and induration; and two rupia-like sores appeared, one on the right forehead and one on the right wrist. The patient was anæsthetized, an incision six inches long made in the right groin, and the mass dissected and torn out; the wound being large and deep; no sutures were introduced. The glandular mass in the left groin was removed at the same time, and the wound sutured. Although there was no evidence of any bleeding point in the right groin when the wound was dressed, a few hours later the dressing had to be removed for a considerable hemorrhage. The wounds were washed out every other day, dressed with iodoform or boracic acid, and an uncomplicated healing by granulation followed. The patient was discharged, recovered, one month after the operation. Examination of the mass removed from the right groin showed that a deep gland was filled with pus pockets, and the incision had failed to reach them. The mass from the left groin was simply enlarged.

In the last two operations there was a strong probability of lesion of the nerve. And as gangrene of the scrotum has not been reported as a sequence of operations for the radical cure of hernia, operations on strangulated inguinal hernia, or other operative procedures in the region of the inguinal canal; and in consideration of the generous nerve supply of the scrotum, it does not seem that the theory of trophic nerve lesion is well founded.

I think the evidence of the cases reported by these writers supports my surmise regarding the danger in this operation of a consequent septicæmia, confined to the scrotum in their cases. Nor is my success any evidence of superior surgery, but due rather to an absence of the "individual factor" referred to by Drs. Winslow and Jones.

MEMPHIS, March 8, 1886.

MEDICAL PROGRESS.

FEEDING-BOTTLE FOR USE IN CASES OF INTUBATION OF THE LARYNX.—At a recent meeting of the Chicago Gynecological Society, PROFESSOR F. E. WAXHAM presented a feeding-bottle, which is thus described: The bottle consists of an ordinary nursing flask, with a rubber cork, in which is a small vent through which a tube passes to the bottom of the bottle. To this tube is attached another leading to the bulb of a Davidson's syringe, and this in turn is attached to a small-sized œsophageal tube. In using this apparatus the gag is placed between the jaws, the tube introduced into the œsophagus, and the contents of the bottle quickly introduced by means of the bulb.

Many patients, especially young infants, do not take sufficient nourishment after intubation has been performed, on account of the coughing produced by the trickling of the liquid into the trachea. This apparatus obviates the difficulty.—*Chicago Medical Journal and Examiner*, April, 1886.

THE VALUE OF CERTAIN ISOLATED SYMPTOMS IN THE DIAGNOSIS OF MANY OF THE DISEASES OF CHILDREN.—POLITZER, in an essay thus entitled, expressly disclaims any attempt at systematic arrangement of the following symptoms, to which he calls attention in his paper. His forty years of experience, and prominent identification with the public Institute for Sick Children at Vienna, entitle his words to careful consideration.

1. One which is likely to attract attention at once, is a strongly pronounced nasal or palatal resonance in a child's cry, and this is, in many cases, the first symptom which should lead to a timely diagnosis of retropharyngeal abscess. The symptom is present, however, in some other affections; for example, in the ozæna of congenital syphilis, and in hypertrophy of the tonsils.

2. A greatly prolonged and loud sounding expiratory act, with normal inspiration and complete absence of asphyxia. Upon this symptom alone the author is willing to base a diagnosis of chorea major.

3. A sighing inspiration, which is continuous, and seems to originate from the upper portion of the thorax. It has not been sufficiently considered by the profession, bearing in mind its importance with reference to diagnosis, and prognosis, and also to treatment. It indicates the beginning of heart weakness and paralysis, and sometimes a developing acute fatty degeneration of the heart.

4. A strongly pronounced diaphragmatic expiratory act, shrill and penetrating in character. This is spoken of as strongly contrasted to the preceding symptom, but equally valuable in diagnosing the bronchial asthma of childhood.

5. The occurrence of pauses between the end of expiration, and recurring inspiration. This might be taken as a symptom of croup, but in most cases the probabilities are more favorable to the presence of laryngeal catarrh of a pronounced type. Associated with this symptom as an important condition is the spasmodic catarrhal stenosis, with its accompanying submucous œdema.

6. Continuous stridulous respiration from the time of birth. This is not unfrequently seen, but is often without important significance, and is supposed by the author

to be due to some fault of innervation, especially with respect to the inhibitory fibres of the vagus.

7. A series of individual symptoms is next referred to, which have reference mainly to the diagnosis of diseases of the brain. The first of these is a very pronounced drowsiness, which is unattended by fever or any other noticeable disturbance, and which lasts some time. When occurring in children who are pale, unusually quiet, and apathetic, it is very often an initial symptom of basilar meningitis. A second symptom of this series is a resistant and non-compressible anterior fontanelle, which is considerably elevated above its ordinary level. It is an important and too little appreciated symptom, for it is present in cerebro-spinal, and tubercular meningitis, in acute, simple, and complicating hydrocephalus, with tumors of the brain, and an intrameningeal apoplexy of infants. It is a noteworthy symptom, too, in fevers, and in various inflammatory conditions, but its especial value consists in its indicating that there is independent disease of the brain aside from any other concurrent processes. The deeply depressed anterior fontanelle, with which is almost always associated a sunken condition of the eyeballs, is indicative of inanition, and diminution of the volume of the blood. The third symptom of this series consists in a remarkably slow movement of the eyeballs, a staring, vacant expression, and slow, infrequent moving of the lids. It is considered by the author as an important indication of the beginning of basilar meningitis.

8. Another series of symptoms may also be noted with advantage in respect to the crying of children. The first of these is a violent, penetrating cry, lasting two or three minutes, accompanied with a most anxious expression of countenance, and occurring an hour or an hour and a half after the child has gone to sleep. It is an indication of what is commonly known as "night terrors," and is very apt to occur among anæmic and irritable children. Again, there is a cry which lasts five or ten minutes, which comes periodically both by day and by night, and may indicate colic or dyspepsia, but it is more likely to be caused by spasmodic action of the bladder, especially if it be observed that strangury accompanies it. Another cry seems to be associated with fear whenever the act of defecation takes place. In such cases obstinate constipation is very likely to be present, and fissure of the anus will often be found to be a sufficient cause. Another severe, painful, continuous cry, with restlessness of the head upon the pillow, and frequent grasping of the head serves to indicate an otalgia, or an *otitis externa* and *media*. Another variety lasts for days and weeks, is aggravated by touching and movements of the limbs, and is associated with paroxysms of sweating and fever. The author looks upon this as indication of acute general rachitis. Still another cry is associated with constant sleeplessness. This may be one of the phenomena of congenital syphilis; but it is more likely to proceed from errors in diet, and in still other cases it is due to the viciousness of nurses. Finally, there is a form of cry which is kept up day and night, which is associated with a history of exhausting discharges, and consequent thickening of the blood.

9. A final series of symptoms includes some which are not noticed by the parents of the child, or not as early as would be desirable for the child's interest. First is mentioned the peculiar physiognomy of con-

genital syphilis. Second is a decided falling together of the nostrils, with total absence of motion in them during inspiration, and significant narrowing of the nasal cavities. This is an indication of hypertrophy of the tonsils of a decided type. Next, a disinclination or inability to move, on the part of certain children, is referred to, which is associated with pronounced weakness, and which is out of proportion to the apparent gravity of the child's disease. The symptoms indicate, however, an approaching or existing spinal paralysis. Weakened power of hearing sometimes indicates the presence of circumscribed meningitis. Depression of the psychical activity after certain brain affections, in small children, may be an indication of the beginning of acquired idiocy. An indication of rachitis is sometimes seen in the delayed ossification of the cranial bones. An anxious, awkward posturing in walking, sitting, rising, and bending, and, in those who cannot walk, a painful contracting of the facial muscles, are said to be valuable signs of the beginning of spondylitis. A constant vomiting, lasting for several weeks, occurring in children with closed fontanelles, and large cranial circumference, indicates a chronic hydrocephalus which has taken on an acute form. Finally, an attack of convulsions may occur, which is the primary indication that the child has epilepsy. In such a case it is important to know as many symptoms as possible, before rendering a positive diagnosis; hence all the points in relation to the convulsions should be taken into consideration before a diagnosis of epilepsy is given.—*Australian Medical Journal*, March 15, 1886.

PARTIAL REGENERATION OF THE KIDNEY.—Recent experiments made by E. DI MATTEI tend to show that, in opposition to the prevailing opinion, the reproduction of lost parts of the kidney and the compensatory hypertrophy observed after unilateral nephrectomy are due more to the active proliferation of renal epithelium than to connective tissue increase.

The observations were made upon kidneys which had been incised or in part broken up with needles, the animals (dogs and rabbits) being killed, and the kidneys removed at various lengths of time after the operation. There was observed, even in the first few days after the application of the initial irritation, a distinct and active proliferation of the morphological constituents of the renal parenchyma, the phenomena being most marked in the cells of the uriniferous tubules. The reproductive activity was often manifested in the cells distant from the seat of injury.—*Centralb. f. Chirurgie*, May 15, 1886.

TREATMENT OF DELIRIUM TREMENS.—DUJARDIN-BEAUMETZ, following the example of Luton, advises the hypodermic injection of one-thirteenth grain of sulphate of strychnine in alcoholic delirium. The injection is repeated at the expiration of five hours, and, if the symptoms still persist, a third injection is administered at the end of twenty-four hours. He maintains the existence of an absolute and reciprocal antagonism between the toxic effects of strychnia and alcohol. It is, however, of course impossible that strychnia should relieve the grave visceral alterations induced by chronic alcoholism.—*L'Union Médicale*, April 25, 1886.

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SURGICAL TUBERCULOSIS.

By surgical tuberculosis is meant those forms of tuberculosis which attack organs amenable to surgical treatment, as contrasted with tuberculosis of internal organs. The latter has been more or less well defined since the times of Laennec; the former may be said to be a development of the idea of Nélaton, published in his inaugural thesis in 1836. Since his time a number of surgeons have added to our knowledge of this subject, the most conspicuous names among them being those of VOLKMANN, GOSSELIN, KRASKE, KÖNIG, and OLLIER. Of these, Volkmann is probably the one who has done most to enlarge the field of surgical tuberculosis, which now includes a very large area. In a recent paper in the *Archiv f. klinische Chirurgie*, Bd. xxxiii. Heft i., he has given a most interesting and instructive summary of his views in regard to this subject. The first class of tuberculous affections which he considers are those of the skin and subcutaneous tissue, and include lupus, ulcers, and the rarer forms of primary tuberculosis and tuberculous abscesses of the intermuscular, parossal, and para-articular tissues. The latter must not be confounded with the secondary developments which proceed from a primary affection of a bone, a joint, or a lymphatic gland. Foci of this sort may be very small and escape detection, especially as they may have healed before the secondary manifestation has attracted attention. The curability of such small foci is indicated by the fact that Volkmann has secured healing by first intention in twenty-three out of fifty-seven cases which he treated by free incision, antiseptic washing, drainage for a few days, and compression of the walls. Especial stress is laid upon the pres-

ence of a distinct membrane in true tuberculous abscesses, the absence of which Volkmann has observed in only two out of more than a thousand cases. Diffusion of a caseous mass through the adjacent tissues is characteristic of syphilis or actinomycosis, as distinguished from tuberculosis.

The second class of tuberculous affections considered by Volkmann includes those of the accessible mucous membranes. Tuberculosis of the tongue has, in the majority of his cases, been followed by pulmonary tuberculosis and death, although a few after operation remained healthy for years, even when they belonged to families in which the hereditary tendency was well marked. Tuberculosis of the fauces and soft palate he has seen almost exclusively about the time of puberty, and thinks it may easily be mistaken for hereditary syphilis. But extensive adhesions of the scarred soft palate, shutting off the pharynx from the nasal cavity or closing the pharynx itself, are more frequently due to healed tuberculous ulcers than to syphilitic ulcers, which are characterized by deep loss of substance rather than by comparatively superficial ulceration which favors subsequent adhesions. There is also a tuberculous form of ozæna, which is not common, and one dependent upon tuberculous disease of the bones of the nose. Volkmann has twice seen grave tuberculous ulceration of the lip. The relation of tuberculosis to fistula in ano is indicated by the constant association of the latter with phthisis, upon which all surgeons have long dwelt. The tuberculous fistula differs from the non-specific in that the former is characterized by a tendency to the formation of masses of fungous granulations, extensive separation of the mucous membrane, undermining of the skin, and the formation of sinuous abscesses.

An analogue of tuberculous anal fistula is seen in the rare cases of perityphlitis which are dependent upon perforation of the bowel by a solitary ulcer, and which have the same characteristics as the tuberculous anal fistula.

Volkmann's third class of tuberculous surgical affections includes those of the genito-urinary apparatus. Tuberculosis of the testicle is commonest in youth or in middle life, but it occurs also in old age. It is important to remove totally a tuberculous testicle, as the surest means of preventing secondary infection; though this is not so important in slowly progressing cases in old men as it is in younger individuals. Tuberculosis of the bladder, ureters, and kidneys is one of the most typical and grave forms of tuberculosis, and it is doubtful if nephrotomy or nephrectomy is of real benefit to patients affected with tuberculosis of the kidney or of its pelvis. Tuberculosis of the vagina and uterus Volkmann has not encountered, but thinks gynecolo-

gists may have some experience in this line. Tuberculosis of the mamma is very rare, and its diagnosis only possible in the later stages. It should be treated by amputation of the breast and cleaning out the glands in the axilla. It is important to bear in mind that a non-tuberculous chronic indurative mastitis may lead to lymphatic enlargements in the axilla which subsequently become tuberculous.

The fourth class of surgical tuberculosis is that of the bones, joints, and sheaths of tendons. Every lesion which was formerly called caries, pædarthrocæ, spina ventosa, scrofulous inflammation of the bones and joints, white swelling, fungus of the joints, strumous affection of the joints, and, recently, fungous inflammation of the bones and joints, is, with exceptions which constantly grow rarer, to be regarded as true tuberculosis. From infectious osteomyelitis and metastatic inflammation of the joints after acute exanthemata, the tuberculous process is distinguished by the acute onset of the former. At the same time it is a matter for investigation how much of the suppurative and destructive inflammation which follows the exanthemata is due to the specific virus of the exanthema. Another important question is, To what extent is it possible for a joint inflammation which was not originally tuberculous to become so?

In speaking of the treatment of tuberculous joint affections, Volkmann rejects parenchymatous injections, and puncturing and washing out the joint. The proper treatment is: *a.* Arthrotomy—incision and drainage, with or without scraping with the sharp spoon; *b.* Synovial arthrectomy—total extirpation of the capsule of the joint; *c.* Bony and synovial arthrectomy, in which as much of the bone is removed as may seem advisable. In this connection, Volkmann calls attention to the fact that the sharp spoon is not so efficient an instrument for the removal of the tuberculous infiltrate of a synovial membrane as it is for that of the parts around a joint or of a bone itself.

The tuberculous affections of the bones are spina ventosa, necrosis of the orbital plate of the superior maxilla, cold abscesses of the skull, tuberculous caries of the ribs, and the ordinary form of spondylitis or Pott's disease. In this connection, Volkmann calls attention to the diagnostic point that tuberculosis rarely attacks the shaft of the long bones in adults. After operations on the bones and joints, the wound often becomes again tuberculous before healing completely; in which case it must be treated promptly, energetically, and repeatedly, even four, six, or more operations being undertaken in the space of a few weeks, if necessary. Occasionally it seems as if an operation led to a generalized acute miliary tuberculosis, by affording the tuberculous virus a means of entrance into the circulation. On the other hand, as it is well known that even the

gravest cases of white swelling, arthrocæ, Pott's disease, and spina ventosa may terminate in spontaneous recovery, and as these are now considered to be forms of tuberculosis, it is not to be denied that tuberculosis may end in spontaneous recovery.

Lymphatic glands may be the seat of primary or secondary tuberculosis, and require enucleation. But one of the most important features in connection with the part they play in tuberculosis is their power of filtration, by means of which they often stop the dissemination of the tuberculous virus, and sometimes seem actually to destroy it. On the other hand, the diffusion of the process is generally assured by the entrance of the virus into a serous cavity, into a mucous membrane, or into the blood current. Anatomical peculiarities, therefore, of the bones, joints, skin, connective tissue, and lymphatic glands make tuberculosis of these structures less dangerous than that of the respiratory or intestinal tract. Again, the susceptibility of different individuals to tuberculosis varies, and so does that of the same individual at different times. Tuberculosis may recur on account of the tendency of the individual, but early local recurrence is due to the fact that the operation was not thorough. This accident never occurs after amputation in perfectly healthy tissue; nor has Volkmann ever seen fungous degeneration of an accidental or surgical wound in a tuberculous or scrofulous individual. Notwithstanding this fact, the great majority of tuberculous affections of the bones and joints are to be referred to a traumatism, and to a slight, rather than a severe one. This may be explained by the fact that the energy of the reactive process after a severe traumatism is unpropitious to the development of the germ of tuberculosis. The prognosis of tuberculosis is best in children, and becomes worse about the period of puberty. For this reason, conservative measures are more appropriate before this time than after it.

In commenting upon this summary of Volkmann's paper, we have only space to refer to the sensible remarks of Ollier, in his work *On Resections and Amputations in the Tuberculous*, that "there is a serious tuberculosis and a benign tuberculosis; there is a generalized tuberculosis and a localized tuberculosis; there is a tuberculosis which inevitably progresses, there is another which tends to stop of itself. The one develops like an infectious and fatal disease; the other produces serious local destruction; but has not, at a certain stage of its evolution at least, the invading course, and remains for a long time limited to the point originally effected. Experimental analysis may some day show us what clinical analysis has already led us to suspect—that is to say, affections of different nature among those which we now group together under the name of tuberculosis. It

is probable that we confound under the name different pyogenic affections."

PUBLIC AND HOUSE SANITATION.

DURING some recent discussions on public health in this city there seemed to be a disposition to ascribe an undue share of the mortality from typhoid fever to the water of the Schuylkill River. Admitting that the Schuylkill is but a drain, and that its water is polluted to a degree that it is, in the judgment of many, no longer limpid or potable, yet, in view of other existing conditions, it is doubtful whether the great mortality from typhoid disease can be wholly attributed to polluted water taken into the stomach.

If there were 600 deaths in this city last year from typhoid alone, as has been stated, it may be correctly assumed that 3000 cases of this disease occurred during the same period. These figures present only a fraction of the disease and mortality due to zymotic causes, all of which are conceded to be preventable. It seems to be erroneous and calculated to mislead, to ascribe all of this disease and mortality to the water of the Schuylkill. We have taken occasion, from time to time, to point out in these columns other sources of disease, some of them existing in and about dwelling-houses, to which a large proportion of it may be correctly attributed. We refer again to the continued use of polluted wells for drinking purposes; pits or cesspools in the cellars of dwelling-houses to receive sewage; closets of defective and imperfect construction still in use and furnished by plumbers; the omission to provide for the ventilation of soil-pipes, which may be done by extending the pipe, or making an opening, to allow the escape of noxious gases into the external atmosphere; the discharge of sewer-gas into dwellings from corrosions and defective joints of soil-pipes, and the use of untrapped and imperfectly trapped waste-pipes. We ought to mention another source of atmospheric deterioration from the escape of sewer-gas into dwellings through traps, the seal of which is broken from infrequent use, inadequate supply of water, evaporation during disuse, and siphonal action. There is, also, great danger in remaining in a house which has been closed long enough to allow the water in the trap to evaporate. Cases have come to our knowledge where families have returned to city homes which had been closed, and charged the malarious illness with which they subsequently suffered to residence in the country in unexceptionable localities, but which, in reality, was induced by sewer-air, introduced through the means we have indicated. A very slight discharge of water, or the replenishing of the traps from time to time, would obviate danger from this source.

The city sewers are dark, closed conduits con-

taining sewage, water of an elevated temperature, and perhaps steam, under conditions favorable to the generation of mephitic gases. The city inlets receive the discharge from surface house-drains and street-washings, and are often in a wretched state, in dangerous proximity to air-ducts supplying air to house heaters. No special provision exists for the escape of gases generated in the sewers, and any accumulation must find an outlet through house-drains into dwellings, unless some harmless vent is provided. It would seem that no more effectual method could be devised for the generation and introduction of noxious gases than exists even now in thousands of houses of this city! Every system of sewage, without high ventilating shafts containing fires, or some other equally effective method for insuring a strong upward draft, is a constant menace to the public health.

Municipal legislation may and ought to remove all existing abuses; and provide that all house sanitary arrangements should hereafter conform to rules and principles established by experience, and that qualified plumbers should be licensed and registered. Household-ers should be impressed with the importance of adopting the best sanitary appliances, with the fact that polluted air may become as dangerous to health as polluted water, and with the danger that threatens them from ignorance and indifference to unsanitary conditions on the part of the public authorities.

OPERATIONS FOR STONE IN THE BLADDER.

SINCE the first establishment of the improvements in the operation of lithotomy introduced by Prof. Bigelow, there has been a slight reaction caused by the recognition of the fact that this method is practically applicable only to calculi of moderate size, and that it requires a degree of skill and experience on the part of the operator which cannot always be found. The consequence has been a more frequent return to cutting operations than was expected in view of the earliest achievements of litholapaxy. This has led to renewed discussion as to the best method of lithotomy. Setting aside the preferences of individual surgeons, it may be stated that the general opinion now is that for small stones, and for stones in small children, an operation through the perineum leaves little to be desired in the way of safety and completeness. For large stones and for those in which there is some unusual difficulty in approaching the bladder through the perineum, the suprapubic operation is much to be preferred. The old arguments of ease of access to the bladder and facility of detecting and removing a stone still stand. The only serious question in regard to the operation concerns its dangers. These it does not do for any partisan to underrate.

They are real, and the adoption of the method is not yet general enough for any great change to have been made in the apparent ratio of mortality. This is, no doubt, due to the fact that even yet—and especially since the prevalence of the operation of litholapaxy—the cases in which the operation is done are the cases in which the danger of a bad result is greatest, and it is not fair to compare the death-rate of this method with that of any other for which the most favorable cases are reserved.

In a recent discussion before the Fifteenth Congress of German Surgeons, reported in the *Wiener medicinische Presse* for May 16, 1886, the merits of the different methods of lithotomy were very thoroughly discussed, the discussion occupying two whole afternoon sessions of that body. Its outcome was about what we have stated above, with the additional opinion that the median operation is to be preferred to the lateral in all cases in which an operation through the perineum is desirable. The question of the advisability of suturing the bladder after suprapubic lithotomy was discussed, but by no means settled. From the present state of knowledge in regard to this feature of the operation, it appears that the circumstances of each case must determine the manner of treating the operation wound after suprapubic lithotomy. Where it may be comparatively easy to close the bladder accurately, and where this organ is not much diseased, careful suturing, without including the mucous coat, promises good and speedy recovery. Where it is difficult to sew up the wound, or where the bladder is much diseased, the wound may be partly closed, and a single or double drainage tube left in the bladder. In many cases it has seemed wise to let the wound absolutely alone, doing nothing besides keeping it clean and watching against accident. Indeed, as good results have been attained in this way as by the most careful closing of the bladder, and in one of these ways we think as good results are to be obtained, in cases equally favorable, by the suprapubic method of lithotomy as by any other.

QUARANTINE INSPECTION AND THE REVENUE MARINE.

WHILST no special danger of the introduction of epidemic disease from abroad exists at the present time, the U. S. Marine-Hospital Service has determined to reestablish an inspection service along the Atlantic seaboard and Gulf coast as a measure of precaution. Accordingly, on the first of the month a patrol of the coast of the United States by the Revenue Marine was ordered, under regulations similar to those issued last summer. Incoming vessels are to be intercepted, and if sickness is found on board or if the vessel is in a foul condition, she will be directed to proceed to quarantine, and the proper quarantine officials notified.

The favorable reports from abroad should not slacken the rigidity of protective measures, as dangers may approach when least expected, and, therefore, the President has wisely concluded to use the powers vested in him by Congress, in giving additional protection to the weak points along the coast by utilizing the services of the Revenue Marine.

It must be admitted that the arrangements as yet lack thoroughness and completeness, and, where local quarantines already exist, impose additional burdens upon commerce which would be unjustifiable did the local authorities, in all cases, provide ample measures of protection. But the service is only provisional, and must yield in time to uniform and concerted action, and the adoption of adequate regulations at all the seaports of the country.

SOCIETY PROCEEDINGS.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Eighth Annual Session, held in the Hall of the College of Physicians of Philadelphia, May 27, 28, and 29, 1886.

THIRD DAY, SATURDAY, MAY 29.—MORNING SESSION.

A paper, by DR. S. SOLIS COHEN, of Philadelphia, on *A Case of Hysterical Sneezing apparently Cured by Applications to the Nasal Passages of the Continuous Battery Current*, was read by title.

DR. JOHN N. MACKENZIE, of Baltimore, presented

A CONTRIBUTION TO THE PATHOLOGY AND TREATMENT OF THE RESPIRATORY VASOMOTOR NEUROSES.

His main conclusions are as follows:

1. The nasobronchial tract is, together with its appendages and connections, frequently the seat of certain periodic vascular disturbances in which paroxysmal explosions of nervous force play an important part, and which depend, it is reasonable to assume, upon a true sympathetic or vasomotor nerve irritation.

2. The tract may be affected in its entirety, or the phenomena be localized in its individual segments. In the latter case, the nasal cavities and bronchial membranes are most frequently the areas upon which the nervous shock is expended, the two territories being seemingly held in close relationship by virtue of a physiological law of sympathy between the two extremities of a mucous tract. In the one case a sympathetic coryza results, in the other a sympathetic bronchitis.

3. In the solution of these phenomena two factors are conspicuously concerned—a depraved condition of the nerve centres, and an abnormal excitability of certain portions of the nasobronchial tract.

4. The derangement of the nervous apparatus may be inherited or acquired. In the latter case it may be occasioned by (1) prolonged irritation of the respiratory membrane by various pathological conditions, leading to constant irritation of the nerve centres; (2) by constant wear and tear of the general nervous system from a multitude of causes. Here the area in which the reflexes are manifested will depend upon the seat of the local pathological process—on the localization of

the area of peripheral irritability. A polypus in the nose, for example, will elicit reflex disturbances referable to the respiratory system, while a similar growth in the rectum will excite symptoms referable to the lower bowel. (3) In another class of cases the excessive irritability of the nerve centres may find its predisposing cause in pathological states of the system as a whole (*e. g.*, diathetic condition), or as the result of reflected irritation from individual parts of the body. After the elaboration of these propositions, Dr. Mackenzie called attention to the occasional remarkable behavior of the respiratory neuroses under the influence of certain acute diseases, having observed the whole group—coryza, asthma, etc.—disappear during an attack of rheumatism, and also the recurrence of the nasal affection and asthma during an attack of measles, after a prolonged interregnum of immunity. Dr. Mackenzie next passed to the discussion of the peculiar hyperæsthesia under consideration. The existing confusion in regard to this point is due to failure to separate the hyperæsthesia naturally associated with the local pathological process and the excessive irritability principally met with during the paroxysm. According to his belief, the latter is, like the vasomotor phenomena which accompany it, a purely secondary phenomenon, and may be brought about (1) by a direct impression made on the nerve filaments of the respiratory membrane, (2) by an indirect influence conveyed through the vasomotor centres, or (3) from an excitation starting in the nerves themselves.

The hyperæsthesia may be general or localized in individual portions of the tract. In either case, while all portions may share in the general hyperæsthesia, there are certain areas, chiefly localized in the lower and posterior portions of the different segments, in which it is more prominent, in which a greater susceptibility to reflex-producing impressions is discoverable, and in which may be best studied the vasomotor manifestations of this special class of neurosis. There are, in the nasal passages, the posterior end of the inferior turbinate body and septum immediately opposite (nasal reflex sensitive area); in the pharynx, the vault and posterior wall; in the larynx, the posterior commissure; in the trachea, active areas along its posterior wall, and so on.

In addition to the arguments already advanced by Dr. Mackenzie in defence of the sympathetic vasomotor origin of these affections in a series of publications on the subject (see especially, *N. Y. Med. Record*, July 19, and Oct. 18, 1884; *Maryland Medical Journal*, April 11, 1885; *Trans. Med.-Chir. Fac. of Maryland*, 1885; *Amer. Journ. of Med. Sci.*, Oct. 1885, pp. 511 *et seq.*, and January, 1886; *Trans. Am. Laryng. Assoc.*, 1884, p. 113, etc.), he called attention to a hitherto undescribed neurosis of the aural apparatus—a sort of "hay fever" of the ear—which he had observed and which supported the doctrine of the sympathetic origin of the affection. He also reported two other observations of interest in view of the probable vasomotor nature of the disease commonly known as "hay fever," viz., the occasional enlargement of the thyroid gland and an enormously swollen and encysted condition of the auricles analogous to that of the rabbit's ear in the experiment of Bernard on the cervical sympathetic.

Dr. Mackenzie next passed to the relation of nasal

disease to asthma, quoting from the writings of Aurelian, Zecchius, Schneider, Flower, Josef Frank, Bree, Forbes, Trousseau, and Duplay, to show that the relationship was familiar long before the observations of Voltolini. Our notions of asthma are still indeterminate. It is regarded as a distinct pathological entity; but if we consider exactly what is involved in the ordinary conception of the term—that, like many other disturbances of respiration, it has no definite anatomical lesion, that it is common to a number of pathological states, we shall be forced to regard asthma as a symptom, which, like cough, may occur in connection with irritation in various parts of the body, but which is commonly symptomatic of some disorder of the respiratory tract.

The association of asthma, coryza, and urticaria was next discussed at length. Fr. Hoffmann was familiar with the relationship of asthma and urticaria, and before him Bazilvi had recommended, in such an event, that the patient sleep with one having the "scabies," that, catching it, he might be relieved of his asthma. William of Orange was cured of an asthma during the running of a sore produced by the famous cannon-ball wound received at the Battle of the Boyne. The coryza may precede the asthma and urticaria, disappearing or remaining after their eruption, or the asthma and urticaria may antedate the coryza, or, finally, the three may appear simultaneously. They seemingly depend upon the imperfectly defined neurosis or vasomotor influence which is probably the connecting link between the three affections. The skin may be regarded as the external organ of respiration, and while the relation of asthma and coryza may be explicable by a possibly normal sympathy between the two extremities of the internal respiratory tract, both asthma and coryza may be linked to the skin affection by a sympathetic bond, which holds in equilibrium and close consent the whole mechanism of the respiratory function. The vasomotor manifestations, as they occur in the pharynx and larynx, were discussed at length, together with the reflex phenomena accompanying them.

Dr. Mackenzie bases his treatment upon the principles involved in the above propositions and upon the generalization announced by him some time ago (see *Maryland Medical Journal*, April 11, 1885) that the group of phenomena known as "hay fever," asthma, and other reflex phenomena found in connection with nasal disease may be classed as symptoms, which owing their origin to a common cause, form part and parcel of a single pathological process, and that, therefore, the treatment for one of these neuroses is the treatment for them all. Dr. Mackenzie paid special attention to periodic vasomotor coryza ("hay fever") in discussing the treatment. The indications here are (1) to remove any existing local respiratory disease or irritation, (2) so to alter the nutrition of the nerve-centres that they may not respond so easily to reflex producing impressions, (3) to adopt appropriate treatment for the relief of any pathological process, systemic or local, which may be regarded as a source of direct or indirect irritation of the nervous or respiratory apparatus. Failing in the above, (4) the partial or complete destruction of the vessels or sinuses over the area or areas in which the vascular disturbance is most marked.

The great mistake universally made in the manage-

ment of this affection is the suspension of treatment upon the termination of the attack, and the importance of continuous treatment throughout the interregnum of fancied immunity from the disease cannot be too strongly insisted upon. Among constitutional measures Dr. Mackenzie spoke favorably of arsenic, phosphorus, zinc, quinia, nux vomica, the bromides, and iodide of potassium. In two cases the constant current (10 to 15 cells) was used, one pole over the nape of the neck, and the other extremity of the current passed alternately over the superior cervical ganglion and through the nasal passages. No lasting good results were obtained from the employment of cocaine, which is moreover, open to the objection first pointed out by Dr. Mackenzie (*Trans. Med. Chir. Fac., Maryland*, 1885, p. 189, May 15; *Trans. Am. Laryng. Assoc.*, June 26, 1885, p. 142) that by bringing repeatedly and violently into play the contractile power of the erectile structures, it may thereby weaken their walls and lay the foundation for a permanent dilatation of the erectile cells.

The topical treatment of local nasal, or of general respiratory disease simply closes one door against *all extra* irritation of the centres. In many cases, it is true, this will be alone sufficient. The nasal passages may be the sole avenues through which the centres are influenced, and with the removal of the irritant and the consequent physiological rest of the centres, the disorder may be apparently, and eventually actually dissipated. But there are other cases in which, from what has been indicated above, such a course will obviously fail. Those who consider the removal of the nasal obstruction or irritation as the *sole* remedy for this disorder base their belief upon an incomplete conception of its pathology. The value of the operative measures addressed to the nasal passages will depend, to a large extent, upon whether the nasal disease is primary, secondary, or accidental. It should always receive most careful attention, but at the same time it should not be forgotten, that behind the nasal, throat, and head symptoms stands the neurosis, and that until the sympathetic nerve irritation be overcome we cannot expect thoroughly to eradicate the disease.

DR. WILLIAM H. DALY, of Pittsburg, said that he had had considerable experience in the therapeutics of this condition. The iodide of sodium had given him better results than any other single remedy. He uses it in small doses long continued, given in hot water on an empty stomach. He insists that all cases of this kind be subjected to a thorough inspection. The upper air-passages should be carefully examined, and upon the slightest suspicion of local disease the condition should be remedied. If this is done, he believes that the disappointments will be few. The constitutional treatment should be secondary, and the local treatment should occupy the first place.

DR. E. CARROLL MORGAN, of Washington, remarked that the galvanocautery has been highly recommended as a successful remedy for hay fever, but his experience with it has not been so satisfactory as that of some other operators. In considering these cases of hay fever, he had been struck with the apparent immunity from this affection experienced by those suffering with anosmia. He had never seen essential anosmia in a subject of hay fever.

He asked the experience of the Fellows in regard to

the efficacy of the galvanocautery treatment as a preventive or a cure for hay fever.

DR. C. E. SAJOUS, of Philadelphia, said that in the early part of his experience with the galvanocautery he obtained excellent results. He had a number of favorable cases. Last year he met with a number of unsatisfactory cases. What it depended on he does not know, but the results were not by any means as good as those of the preceding year. It certainly was not from want of attention on his part. Although all the cases were benefited, he did not obtain absolute relief in more than forty-five per cent. Some of the cases treated two years ago, and which escaped the attack the following year, had a recurrence last year. This he considered a matter of great importance, because, in his book, he had advanced the opinion that these cases were absolutely cured. Some of the cases have entirely escaped. One case, treated in 1881 with glacial acetic acid, has had no recurrence.

DR. C. SEILER thought that the failures of the treatment of hay fever might be explained by the suggestion thrown out in the paper read. The Schneiderian membrane is not the only source of irritation of the vasomotor nerves. The source of irritation may be situated in the pharynx or in the larynx. If the case does not yield to treatment of the nasal membrane, we should look further. Two years ago a case of hay fever presented itself, in which glacial acetic acid was applied, and the following summer the patient was free from hay fever but suffered with asthma. Examination showed a large posterior hypertrophy. This was removed, and since then he has had neither hay fever nor asthma.

DR. MACKENZIE said that if the trouble depends upon an affection of the nasal membrane, the removal of the cause with the physiological rest of the nerve centres, will be sufficient to effect the cure. There are other cases, however, in which there is a general condition of the nervous system which must be removed. He had had cases in which the cure was effected simply by the above plan of treatment without any local applications whatever.

DR. SAMUEL JOHNSTON, of Baltimore, reported

A CASE OF NASOPHARYNGEAL GROWTH.

A child was brought to him on account of difficulty in breathing through one nostril. Examination showed that there was a tumor filling up the posterior part of the right nostril. After a short preliminary treatment, an attempt was made to remove the growth with the écraseur. A spray of a four per cent. solution of cocaine was employed. A cord was first passed through the nostril and brought out of the mouth, so that, if necessary, the nostril could be plugged without delay. The wire of the écraseur was applied without difficulty. When the growth had been cut through about two-thirds, the shaft of the instrument broke, leaving the wire and about three-fourths of an inch of the instrument attached to the growth. An attempt was made to apply a second écraseur, but this failed. After trying to remove the portion of instrument broken off, it was decided to wait a short time and allow the growth to slough. Four days later, the attempt to apply an écraseur was again made, and succeeded without difficulty. The tumor measured one and one-half inches in diameter, and was fibroid in character.

DR. C. C. RICE, of New York, discussed

WHAT CASES OF NASAL CATARRH REQUIRE SURGICAL TREATMENT?

Almost every nasal chamber will exhibit irregularities and abnormalities of some kind. The introduction of more improved methods of determining the locality of inflammation has led to a more frequent resort to surgical measures. With the galvanocautery almost any effect from a slight stimulation to destruction of tissue can be obtained. Those who condemn this instrument should state what use of it they object to. Not every case of anterior hypertrophy should be operated upon. The erectile tissue in this situation serves a valuable physiological function in swelling up and excluding irritating particles from the lungs. In determining whether or not an operation is required, the sensations of the patient should be taken into consideration, with the results of the examination. If, after the use of a four per cent. solution of cocaine, sufficient hypertrophy to interfere with breathing is still apparent, it should be removed.

DR. F. H. BOSWORTH, of New York, objected to the view that the so-called erectile tissue of the nose is a true erectile tissue. It assumes the erect position only as a morbid condition. It is simply an enlarged conglomerate mass of bloodvessels. There is no physiological function observed by its swelling up. He also objected to the statement that all persons present abnormalities of the nose. It is a mistake to suppose that we have morbid conditions in every nose. The healthy nasal cavities present a typical appearance.

DR. J. N. MACKENZIE said that the microscope shows that the erectile tissue of the nose corresponds with the erectile tissue in other portions of the body. He believes that these bodies serve the physiological purpose of excluding irritating bodies from the lower respiratory tract. Experiments with horses driven through a cloud of dust have shown that while the anterior portion of the nose was filled with dust, none passed into the larynx.

THE PRESIDENT, DR. HARRISON ALLEN, held that the question of the erectile tissue of the nose should be treated on a broader scale. In man the nasal chambers are exceedingly degenerate. There is no animal in which the nose is so small in comparison with the rest of the face, as in man. It is well known that structures which are passing through a process of degeneration are exceedingly variable. So it is with the human nasal chambers.

Remembering this fact, we come to another of great interest, that all animals with short faces, as the rabbit and cat, have, on the nasal septum, erectile bodies. He held that the object of these bodies is obstructive, and that by swelling up they protect the portions behind. If that is the case, he could not see why we could not claim that erectile tissue exists in man. It was his opinion that erectile tissue does exist, and that it is protective and obstructive.

The following papers were read by title: *Inflammation of the Antrum*, by DR. BEVERLY ROBINSON, of New York. *Additional Notes of a Case of Erysipelas of the Larynx*, by WILLIAM PORTER, M.D., of St. Louis.

A vote of thanks was tendered the College of Physicians of Philadelphia, the Union League Club, the University Club, and the Managers of the Pennsylvania Hospital, for courtesies extended.

The Association then adjourned to meet in New York at the call of the Council.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, May 6, 1886.

THE PRESIDENT, B. F. BAER, M.D., IN THE CHAIR.

DR. HOWARD A. KELLY read a paper entitled

ASEPSIS, NOT ANTISEPSIS: A PLEA FOR PRINCIPLES, NOT PARAPHERNALIA IN LAPAROTOMY.

Medicine, like other branches of science, has been most retarded in its growth by the accumulation of all sorts of useless details, some of which still clog the advance of abdominal surgery, as, for instance, the use of carbolic acid and mercuric solutions at the operating table and the continued use of any elaborate abdominal dressing.

The use of antiseptics in the patient's belly is full of danger and inconsistencies for the following reasons. *First.* If used in strength sufficient certainly to prevent sepsis, the patient is very often killed along with the germs. Of the bichloride solution, it is sufficient to say that its use has been very much curtailed in all maternity hospitals even as a vaginal wash. The danger line is here a very broad one, for the limit appears only to depend upon the most variable of all factors, the individual susceptibility.

Second. It is the great tendency of all operators, and in particular their assistants, to forget the principle involved, and pin their faith to the accidental means of establishing it. This can be seen abundantly illustrated in almost any hospital in the land, where a clean napkin worked in and around the joints and grooves of the instruments in use, or carried under the nails of the operator's fingers, will exhibit sad evidences of soil. Then, too, the actual conduct of the operator is often modified by the false sense of security begotten by the incomplete use of antiseptics.

If germicides must be used at all, let it be before the operation and in strength sufficient to neutralize any sepsis about instruments, sponges, etc. Then let the operator go to work with clean instruments, clean sponges, and clean hands and he will need no antiseptic, and the patient's belly will no longer be a battlefield where germs and solutions fight, often with such direful results to the host. It is his belief that it will not be long before the day of solutions will be past, and that in the future the successful surgeon will go to his work with pure water or dry pans for his instruments and fluid enough to cleanse sponges. His own practice has been to use hydrant water boiled for an hour and allowed to stand, or, better still, distilled water, as used by Prof. Schröder and independently suggested and used by Dr. Joseph Price. He did not believe that reservoir water, dirty as it often is, ever contains any of the specific matter productive of septicæmia; but the process of boiling and using only the supernatant liquid makes it perfectly harmless.

Another fallacy discarded by some of the greatest operators but perpetuated by many is the transference of the use of the elaborate Listerian dressings of general surgery to the abdominal wound. These dressings, so manifold and multiform, are clearly intended to

prevent sepsis from penetrating the now closed abdominal wound. This is an accident which fortunately never occurs in the intraperitoneal method; the rapid agglutination of peritoneal surfaces effectively closing the sac. A sterile dry powder will absorb the slight serous discharge at the edge of the wound and suture exits, and above this some absorbent cotton and a firm bandage are all that is required.

While the danger of infection of the peritoneum through the closed wound is minimal; that of an infection of the belly wall through stitch holes is very great, and this is best prevented by the dressing recommended by Keith, of carbolic acid and glycerine, one to eight parts.

With the mind thus freed from the notion that these solutions and dressings are accomplishing anything—from two such dangerous fallacies—operators at large will then work with a living consciousness of the real conditions of success, and they will then be on the alert from the beginning of the operation to its close, keeping within the mental horizon an exact knowledge of everything coming into contact with the patient's belly.

The expression of his convictions and practice will be of value in so far as they are in accord with the following letters upon the subject by the two greatest abdominal surgeons in the world, Lawson Tait and Thomas Keith. Lawson Tait, in a letter, dated March 15, 1886, to the writer, says: "I still use tap water and nothing else; it is never boiled; my instruments are prepared by being washed in soap and water merely. I use no elaborate dressings for the wound, never using anything at all except absorbent cotton-wool."

Mr. Thomas Keith, of Edinburgh, in a communication written March 16, 1886, says: "The secret in abdominal surgery, the secret in all surgery, consists in carrying out the antiseptic principle. You may do this in a simple way or you may do it in a complicated way. All instruments, needles, forceps, sponges, etc., everything about the wound must be disinfected. A weak carbolic solution applied to the wound can do no good—nor harm. You may safely use hot water. My instruments, after an operation, are scrubbed with a nail brush, especially the forceps points. This is repeated before the next operation with a five per cent. solution of carbolic acid. The greatest risk is that we put in septic matter on our hands, instruments, and sponges. Sepsis may come from the wound, but it rarely ever penetrates inside. I use a simple dressing of gauze, eight or ten folds soaked in one to eight carbolic acid and glycerine, extending two or three inches or so beyond the line of incision on all sides. Over this some ordinary cotton-wool, a flannel bandage, and nothing else. Use this and you will never use anything else, and do not look at it for a week or ten days. You ought, for the patient's comfort, to put on an antiseptic dressing of some kind. You will probably often have suppuration with stitches if you do not."

DR. MONTGOMERY said that we can now eliminate almost entirely the antiseptic agents—carbolic acid, mercuric chloride, thymol, etc.—and can do as well by the most rigid attention to cleanliness in all details of hands, instruments, sponges, and the skin of the patient. Some years ago he felt gratified that, in a patient upon whom he operated before a class at the Philadelphia Hospital, with Listerism and the carbolic spray, the

temperature did not rise above 102°. Now, in his private hospital, with rigid attention to cleanliness and thorough washing of the peritoneal cavity with hot water, the highest temperature will be below 100°. After operations involving the opening of the peritoneal cavity, if there has been any opportunity for the escape into it of blood, pus, or cyst contents, he washes it out thoroughly with hot water. After closing the wound he covers it with sublimated gauze and absorbent cotton, and secures this with strips of plaster and a bandage. This dressing remains a week without need of disturbance. If gut sutures, or silk rendered aseptic by a coating of wax with carbolic or salicylic acid, be used, there will be no trouble about suture abscesses. In a recent case, in which the abdominal walls were two inches thick from adipose deposits, these precautions were observed and there was not the slightest suture trouble. He does not now consider the spray of any value, because we cannot use carbolic acid solutions strong enough certainly to destroy germs without poisoning the patient; and the spray only washes the germs down into the wound.

DR. PARISH said that antiseptics are not intended to take the place of cleanliness. The greater the care bestowed on cleanliness in all details, the less will be the need for antiseptics. Boiled water, filtered, is a good washing material; patient, hands, and instruments must be clean to insure good results. Absorbent lint, wet at time of using with a 1 to 2000 mercuric chloride solution, is a good external dressing. Dr. Parish agreed with most of Dr. Kelly's statements, but he believes in the value of antiseptic vaginal injections after labor in hospitals. The maternity wards of the Philadelphia Hospital showed a large number of deaths, varying from three to ten per cent., for many years prior to 1855; but last year, in 247 cases of labor, there were but 2 deaths. One of these was after Cesarean section in a patient who had been in labor nearly three days before she was brought into the hospital. The other fatal case was in an idiot, and was largely from other causes than the labor, which was not at fault. These good results are due to the use of mercuric chloride injections principally, although new wards have been built and opportunity given for frequent change of nurses when advisable. In a case of septicemia following adherent placenta, the patient seemed almost moribund, but hot uterine injections of mercuric chloride, 1 to 4000, stimulated her and led to recovery. Water is boiled to destroy possible germs, and filtered to get rid of various impurities not held in solution.

DR. M. PRICE thought the heat of the injection used by Dr. Parish was the most important element in stimulating the patient; but the mercuric chloride would do no harm, and the fact that improvement commenced and continued from that time is the important point. The reaction against the use of antiseptics should not be allowed to go too far. They have done great good and cannot be discarded.

DR. M. O'HARA reported a case of

EXTRAUTERINE PREGNANCY WITH RUPTURE OF THE FALLOPIAN TUBE; LAPAROTOMY ON THE THIRTY-THIRD DAY; RECOVERY.

On September 25, 1885, he was called to see R. H., who had been in good health until seized, two hours

previously, with severe rectal tenesmus, agonizing pain in the pelvis, pains in both flanks and extending down the right leg and arm. From the tenesmus she thought she would have a stool and rushed to the water-closet, but no relief following, rushed to her room and fainted; she was carried to bed, rectal injections were given by those present, but no movement followed, and opiates were given for the relief of the pain. When he saw her she was in collapse, almost pulseless, respiration shallow, extremities cold. The whole surface was bedewed with a cold death sweat. She could not lie on her left side or back, but reclined doubled upon her right side, and would jump up occasionally with exclamations of agony. The history, hastily gathered, gave the following data: R. H. was thirty years of age, mother of three healthy children, the youngest, one year old, she was still nursing. She had never been sick, and had menstruated regularly. One menstrual period had been missed about a week before the accident, and she considered herself pregnant.

The diagnosis was internal hemorrhage due to rupture of the Fallopian tube at the fifth week of pregnancy. Opiates and stimulants were used. The next day Dr. Parish was called in consultation, and concurred in the diagnosis. There was still some shock; pulse 130, feeble and irregular; respiration feeble; temperature normal; great pallor, evidently due to the loss of blood; the abdomen was moderately distended with occasional cramp-like pains; moderate tenderness, but no symptoms of peritonitis. The patient showed signs of reaction, and laparotomy, though discussed, was deferred. Five days after the rupture, the patient was able to bear a close examination. The abdomen was greatly distended; there was no tenderness on moderate pressure; resonance was general, except in right flank, where there was moderate dullness; there was no dullness in the left iliac and lumbar regions except very far back near the kidney. There was an apparent bulging of the right flank. The vaginal surface was generally oedematous, the anterior wall of the vagina was thicker at the cervix and to the left. The cervix is moderately soft and patulous; no bulging of the posterior pouch. It was not deemed advisable to use the sound. The urine was almost black in color. Pulse 104°; temp. 99°; respiration normal. Two days later marked jaundice appeared, although occasional vomiting and purging of bile occurred. A few days later a swelling was noticed on both sides, and in front of the cervix; and a bloody painless discharge, containing decidua-like fragments, escaped from the uterus, and the dullness in the right iliac region disappeared. Urination became painful and difficult. The patient felt so much better that she desired to get up.

Three weeks after the first attack a terrible flooding occurred; it lasted for an hour, and slight hemorrhage continued afterward. There was a decidua in this discharge. At the same time the suprapubic tenderness extended toward the right, and slightly increased on the left side, extending upward as high as the umbilicus. Chills, and a rise of temperature to 101° F., vomiting, constant sharp cutting pain, and emaciation, with signs of softening along the crest of the ileum, and general appearances of blood poisoning occurred, and surgical interference was strongly urged as the only means of averting death. On the thirty-third day Dr. Parish

operated, and he prepared the following report of the operation:

There were present Drs. O'Hara, R. P. Harris, DeF. Willard, and McElroy. Dr. Parish proposed to cut down directly on the tumor by an incision immediately above the outer portion of Poupart's ligament, believing that the tumor consisted of blood coagula and pus located external to the peritoneum, and that the anterior parietal peritoneum had been dissected up to such an extent that the mass could be incised and emptied without opening into the peritoneal cavity, and without incurring the possibility of objectionable fluids reaching the serous surface. He also believed that the peritoneal cavity was clean, and that there had been no general peritonitis.

The gentlemen present advocated a median incision for purposes of exploration, and in deference to their views, he first cut through the linea alba just below the umbilicus, making an incision long enough to admit two fingers. The peritoneal cavity was found empty, and the peritoneum quite normal, though somewhat congested. The exploring finger showed that the mass was external to the peritoneum, and had extended upward from the left half of the pelvis to a level with the umbilicus. The broad ligament had become obliterated by separation of its layers. It was not thought advisable to explore with the finger with the view of determining the condition of uterus, ovaries, and tubes. The peritoneal covering of the abnormal accumulation was evidently thin and tense, so that a careful exploration as to the condition of the uterine appendages would have endangered its rupture, and the probable development of general peritonitis. It would have been an easy matter to have stitched the parietal wall of the tumor to the walls of the median incision, and to have then, by incision, emptied the mass of its contents. But such a procedure would have been attended with risk of leakage of the offensive fluid into the peritoneal cavity. To avoid this risk, he now made another incision along the line of original election—*i. e.*, above the outer border of Poupart's ligament—and readily reached the mass cavity without wounding the peritoneum. This incision was made long enough to admit two fingers. About one quart of blood coagula, fluid blood, and pus escaped. The fibrinous masses were removed, and all attached portions were scraped off with the fingers. The curette was avoided chiefly because of the thin upper wall. The cavity was washed out with antiseptic fluid. The median incision was closed with sutures, a drainage tube was introduced into the mass cavity. An incision could not have been safely made through the vagina, as the intervening tissue was too thick, and its vascularity too great. The incision made admitted of more thorough emptying of the cavity.

The patient suffered no shock from the operation. There was a slight sanguinolent discharge, containing small clots, from the drainage tube, amounting to about two ounces in twenty-four hours. Nourishment was taken fairly. The cavity left at the time of operation held 3xxxij. In two days it had contracted to 3j; but the discharge was purulent and offensive. A bloody discharge from the uterus had continued since the operation, but was free from odor and diminishing. The last sutures were removed five days after the operation, and two days later the drainage tube was replaced by

a tent. Two weeks after the operation the uterine discharge had ceased, but free bleeding from the wound occurred; there had been no exertion, sneezing, or coughing, to cause this hemorrhage, which occurred about eight weeks after the last menstruation, but a week later a bloody discharge occurred from the uterus and wound. The temperature rose to 103° F. There was no pain on pressure, but there was a suspicious hard spot in the left iliac region. Twenty-four days after the operation the patient was permitted to sit up, and while cheerfully singing felt blood streaming down her legs from the wound; clots passed also from the uterus and rectum. She felt the rectal tenesmus and pains in right lower extremity, similar to those felt at first seizure. Much blood was lost. A similar bleeding occurred three days later, and as life was endangered it was thought necessary to give ether and explore the cavity. It was found that the tissues had been dissected up by accumulated blood and pus, until the cavity extended down the side and front of the uterus and communicated with the rectum at the upper end. The cavity was thoroughly scraped with a curette, and was then packed with alum sponges after disinfection with Platt's chlorides. The patient reacted well. When the wound was injected nothing came from the rectum; but an injection into the rectum came out of the wound, and there was a fecal odor about the wound. Next day the sponges were removed, and muslin tampons, wet with phenol sodique, were introduced. The packing was changed twice each day. Discharges of offensive fecal matter and small gall-stones escaped from the wound.

On February 15th, nearly four months after the operation, the patient is noted as doing uniformly well; the wound is closing; the exudation about the uterus and vagina is disappearing, and the odor and elimination of gas while dressing the wound had disappeared.

May 1st, patient has gained greatly in flesh and presents the appearance of perfect health. A very small short sinus alone remains. The communication with the bowel has closed entirely. Menstruation occurs normally, and there is no bleeding at any time from the wound.

Dr. PARISH made a few remarks upon the history of this case and the difficulties surrounding a diagnosis. The patient was thirty years of age and perfectly healthy. She missed one menstrual period, and a week later, possibly in the fifth week of pregnancy, there were signs of internal hemorrhage with shock. Dr. O'Hara at this time made his diagnosis, doubtless correct, of tubal pregnancy with rupture of the cyst. The patient commenced after a few hours to rally. Dr. Parish was called in consultation the next day; he suggested an operation to remove the cause of the trouble, but did not urge it as the symptoms had ameliorated. The patient continued to improve for several days. Afterward a tumor appeared. The first hemorrhage being into the folds of the broad ligament and limited, did not show, but as repeated hemorrhages occurred the tumor increased, pus formed, the embryo softened, septicæmia without peritonitis was developed, and then the operation was performed and was then imperatively demanded. Three months after the original shock, a sudden and nearly fatal hemorrhage occurred simultaneously from the wound, vagina, and rectum. Evidently there was a tubal communication between the uterus and the wound,

and a large rectal fistula had formed. This fistula healed without any separate operation.

There was evidently at the beginning a pelvic hematocoele without peritonitis, due to a ruptured Fallopian tube. The early operation was proposed, but did not meet with approval. It was evident that the hemorrhage was extraperitoneal, as it would most probably have been fatal if it had burst into the peritoneal cavity. He deprecated the expectant plan of treatment of cases of rupture of the cyst of tubal pregnancy, but in this instance the amelioration of the symptoms at the time when first seen by him led him to hesitate as to the necessity for immediate operation. The sequel showed that in this case an early laparotomy would have been of no service. The patient's recovery is complete.

Dr. HARRIS heard of this case a week after its commencement, and believed from what he knew of it at that time that it would be advisable to perform the laparotomy; but subsequent developments indicated that the hemorrhage was extraperitoneal and gradual, and there was therefore no immediate danger to be overcome. When, however, he saw the patient, October 28th, he was satisfied that her constitutional symptoms required that an exploration of the abdominal cavity should be made, the blood cyst defined, and then that the blood should be evacuated above the left groin. This opinion being sustained in the consultation, the operation was performed accordingly.

Dr. O'HARA had made his diagnosis at the time of the accident. Operation could not have been performed then on account of the collapse, and after that passed away it did not seem called for until the time of its performance. One question has arisen in his mind from the subsequent history of the case. Would it not have been better if the wound had been packed from the time of the operation?

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, June 1, 1886.

THE PRESIDENT, CHARLES L. DANA, M.D.,
IN THE CHAIR.

TRIGGER FINGER (DOIGT À RESSORT).

Dr. GEORGE W. JACOBY read a paper on this affection, which, he said, is, strictly speaking, one of a surgical and not of a neurological nature—that is, if its pathology as at present accepted is correct. These cases, however, when encountered by the general practitioner, are liable to be referred to the neurologist; hence the importance of being able to diagnosticate the condition. *Doigt à ressort* is the name given by Nélaton to a peculiar inhibition of motion in fingers otherwise normal. Flexion and extension are arrested at a given point, and if completed by force, the movement resembles the closure or opening of the blade of a pocket-knife. Sometimes only extension is interfered with. As a rule, muscular effort alone is sufficient to overcome the obstacle. Generally the entire motion is painful, particularly at the time of the snap. The patient usually locates the pain in the interphalangeal joint, but a careful examination will show that it is at the metacarpophalangeal articulation. Externally the finger presents nothing abnormal; but pressure over the last-mentioned joint almost always

produces pain, the painful point being usually confined to a small place upon the volar surface of the flexor tendon. In all cases except those of Busch and his own, a hard lentil-sized body, which was particularly painful on pressure, was found attached to the tendon about two centimetres above the digito-palmar fold. All authors lay stress upon the presence of this body, as it is, according to all theories of the mechanics of this phenomenon, essential to its production. In Dr. Jacoby's first case he did not remember to have found any nodosity, but as he did not pay particular attention to it, it may have been overlooked. In his second case, however, knowing of the cases of Busch, and of Marciano's criticism on them, he made a very careful examination, and could say positively that there was no nodosity or abnormality of any kind discoverable.

He saw his first case in 1881, but did not make a diagnosis. The patient was a female servant, who almost continually had her hands in water. She had had vague rheumatic pains for years, but had never had an attack of acute articular rheumatism. About six months prior to her visit to Dr. Jacoby, she began to have a peculiar tingling sensation in the ring-finger of the left hand, with shooting pain upward in the arm; she also complained of weakness of the finger and difficulty in flexing it. There was, however, no distinct *ressort* until two months before he saw her; then she was unable one morning to close the finger, and in attempting to aid herself with the other hand, the finger suddenly snapped shut. Dr. Jacoby saw her only once.

The second case was that of a clerk, aged twenty-eight, whom he saw in November last. The middle finger of the right hand was affected. There was no apparent cause; the patient had never had rheumatism, nor sustained an injury of the finger. The phenomenon came on very suddenly while he was engaged in writing and was very much fatigued. He made his own diagnosis of writer's cramp, and a physician whom he consulted coincided with this diagnosis. Upon examination Dr. Jacoby found the peculiar snap to be well marked, and the patient was unable either fully to extend or flex the finger without the aid of the other hand. Both flexion and extension caused severe pain. Pressure over the metacarpophalangeal joint was painful. Repeated and careful examinations failed to reveal the presence of any nodosity or irregularity whatsoever. The treatment consisted in the application of the galvanic current, but after a few sittings the patient disappeared from under observation.

The affection has been described, and cases published successively by Notta and Nélaton, by Fenerly, Arrachart, Busch, Annandale, Dumarest, Hahn, Menzel, Fieber, Vogt, Blum, Felicki, Herraer, Leisrink, Marciano, and Largeau. The only reference to it which Dr. Jacoby had been enabled to find in any English or American periodical was a translation of Menzel's article, published in the *Boston Medical and Surgical Journal*, 1874, and the description of a case by Annandale, which, however, he evidently did not recognize as a case of *doigt à ressort*. Dr. Jacoby gave tables of thirty-three cases by different authors. Twenty-one cases were in women and only ten in men, in two the sex not being specified. All the cases were in adults, excepting two. Occupation seemed not to have any influence in the production of the malady. The fingers

affected were the thumb sixteen times, the ring-finger fifteen times, the middle six, the small finger twice, and the index-finger only once. In five cases more than one finger was affected. The etiology must, in the majority of cases, be sought in rheumatism; next in traumatism. In some cases no direct cause could be found. The diagnosis was easy. The prognosis was generally fair, as the symptoms usually disappeared after several weeks of appropriate treatment.

DR. E. C. SEGUIN said that he had never seen a case of true *doigt à ressort*. He had seen two cases which resembled this condition, but which were of an entirely different nature in their etiology. They verified the author's statement that such patients are likely to be sent to a neurologist, and he should therefore prepare himself to make a diagnosis. In one of the two cases to which he referred, the patient was unable voluntarily to flex the terminal phalanx of the thumb, and if it were forcibly flexed it would go back with a jerk. There had been section of the long flexor of the thumb.

DR. M. A. STARR, who had also seen the second case referred to by Dr. Seguin, said the difficulty, which was due to section of a tendon, had been mistaken for paralysis, but Dr. Seguin corrected the error in diagnosis. A surgeon had sent to Dr. Starr within the past week, another patient who at his work was accustomed to make firm pressure with his hand, and suddenly he experienced difficulty in flexing his fingers, being entirely unable to flex the little finger. The faradic current caused flexion of all the fingers but the little one. He sent the patient to a competent surgeon, who made the diagnosis of rupture of the long flexor tendon of the little finger.

DR. WILLY MEYER had seen two cases of *doigt à ressort* in Europe. One came to the surgical clinic at Bonn while he was assistant. In both patients the middle finger was affected. One patient was a man, the other a woman. In the case of the man a very thorough examination was made, but no apparent pathological change was present. He was able to use his hand, but with some inconvenience. He wore a splint four or five weeks, which left the finger a little stiff, but this was overcome by prolonged warm baths and passive motion. The woman had complained for about two months of pain along the flexor tendon, from the middle of the palm of the hand to the tip of the finger, the pain having grown steadily worse. A small, painful nodosity was felt just below the metacarpophalangeal joint. As there was no doubt that this nodosity was the cause of the affection, they advised its removal, but the patient refused. There were two interesting cases of trigger finger published in the *Centralblatt für Chirurgie*, 1884, No. 16.

Dr. Meyer thought there is always a mechanical cause of the disease, for even in those cases in which no periarticular pathological symptom is observable there may be something wrong within the articulation. As to treatment, were there no apparent cause for the difficulty, he would use the plaster-of-Paris splint, massage, prolonged handbath, passive motion, and perhaps electricity would be advisable. If a nodosity were found, it should be removed.

DRS. C. L. DANA and W. P. WILKIN presented a paper on

GILLES DE LA TOURETTE'S DISEASE,

in which the disease was described as an affection char-

acterized by incoördinate movements (tics convulsives) and by echolalia (automatic echo-speech) and coprolalia (or automatic obscene speech). The description of the disease by Beard, O'Brien, Hammond, and Tourette received attention, and reference was made to the unity of Latah, Miryachit, The Jumpers, and Tourette's cases of tic convulsive. The disease begins almost without exception by attacks of motor incoördination affecting generally the head, face, and upper extremities first, then involving the whole body. After remaining perfectly quiet the patient suddenly makes frightful grimaces, blinks the eyes, snaps the jaws, raises the shoulders, etc.; if the lower extremities are affected the patient stamps his foot, raises himself, and jumps as he walks. After having suffered from attacks of motor incoördination for a time, the patient will, with the attacks, utter inarticulate cries, or he may repeat or echo the words he overhears (echolalia). All this is done automatically and suddenly, and usually with the accompaniment of grimaces and muscular contortions. In the case reported the attacks of explosive obscenity, or coprolalia, had been more prominent than the incoördinate movements. The patient, a boy of twelve years, of neurotic history, when sitting quiet, would suddenly and involuntarily burst out into expressions of the most profane and obscene character, repeating them rapidly for a few moments and then stopping. A surprise or sudden noise of any kind tended to produce an outburst, just as surprises in other cases brought out jumping or incoördinate movements. The condition of echolalia in the case, although less prominent than the coprolalia, was nevertheless well marked. The patient also seemed impelled to tell those things which he most wished to conceal. The motor disturbances were more marked after the patient, through some restraint, had to repress his outbursts of obscenity. The movements and expressions could generally be voluntarily controlled for a while, but only to burst forth again with greater violence. The sudden interjections by the patient of obscene words and expressions were regarded by Tourette as pathognomonic of this affection.

The disease is a chronic one, beginning insidiously and lasting for years, sometimes for a long lifetime. None of Tourette's cases were cured, though some were greatly ameliorated. The diagnosis of the disease is not difficult. From chorea it is distinguished by the suddenness and larger range of the involuntary movements, and by the fact that a muscular explosion is followed and preceded by complete rest. The symptoms are those of a convulsive tic. Echolalia and coprolalia may form part of the symptoms of insanity, and coprolalia has been observed in aphasia. It is easy to differentiate these conditions. As to the pathology, from the long continuance of the disease an organic lesion can be excluded, and from the general history it is apparent that it belongs to the neuro-degenerative disorders. In the treatment one measure had proved of marked benefit, namely, isolation. Tonics, bromides, arsenic, and electrotherapy had caused some amelioration.

THE PRESIDENT remarked regarding the case that the patient had improved very much under treatment. It was one of the cases in which moral agencies had the power of suppressing the symptoms for a time. The audience had probably observed that while sitting

quietly the patient had exhibited a peculiar kind of cough which was about the only thing noticeable.

DR. GRAEME M. HAMMOND asked whether the boy was cruel.

THE PRESIDENT replied, not to his knowledge. The only bad trait which the boy had manifested was the disposition to lie.

DR. JULIUS RUDISCH thought it probable the disease as described by Hammond was the same as that prevailing in Kamtschatka. Persons suffering from acute or chronic belladonna poisoning exhibit this jumping tendency. A further interesting fact was the similarity between the symptoms manifested by this class of patients and those of certain persons sensitive to tickling. Some persons suffering from mental weakness or a mild form of insanity are disposed to pronounce very obscene words, to manifest twitchings of the face and other involuntary movements which they sometimes take pleasure in observing in the mirror. It hardly seemed to him that the description of the case presented to-night accorded with that given by Beard and of those in Siberia and similar ones in Java.

DR. E. C. SEGUIN thought it might be questioned whether the case presented was like Tourette's cases on the grounds expressed by the author, namely, the different mode of development, the order of development, and the fact that this patient had a defective mind, whereas Tourette's patients had normal minds. Still, this might be a case in which there was simply an inverse order in the development of the phenomena. He would like to enter a protest against the nomenclature of the disease, especially as it presented no definite clinical history. In some of Tourette's cases there was absence of echolalia or of coprolalia. He preferred Charcot's definition, that of tic convulsive, which might include quite a variety of jerking affections, or another term embracing all possible varieties of these cases might be employed, as abnormal chorea. An interesting, but almost forgotten, French monograph of about 150 pages on these jerking affections was published at Strasburg in 1850. An interesting case had been reported by a distinguished surgeon of New York.

DR. M. A. STARR referred to a case related by Dr. Mills, of Philadelphia, in which a tumor involved the second frontal lobe on the left side and pressed upon the third. One of the prominent symptoms was the tendency on the part of the patient to use profane and obscene expressions, apparently without any power to control it. The case suggested the question, why, since irritation of the central convolutions would produce involuntary motion, irritation of the third frontal convolution should not produce involuntary speech.

THE PRESIDENT was perfectly aware that the case is one difficult to classify, but he felt positive that if there is such a disease as that pictured by Tourette this patient has it. In one journal which he consulted the name Gilles de la Tourette was given it by Charcot, and he was much surprised to hear Dr. Seguin say that he did not approve of that name. However, he agreed with Dr. Seguin that there are objections to the name. He could not understand how some of the gentlemen arrived at the opinion that the condition in this case was due to insanity, for the boy, although there seemed to be some defect in his mental nature, did not manifest any symptoms of insanity.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

*Semi-Annual Conversational Meeting, April 22, 1886.*THE VICE-PRESIDENT, JAMES TYSON, M.D.,
IN THE CHAIR.

DR. GEORGE A. PIERSOL read, by request, a paper on

MEDICAL PHOTOGRAPHY.

The character of photographic work, which the medical man may probably desire to undertake, may be divided into three groups: 1st, photographing specimens; 2d, photographing patients; 3d, photographing microscopical specimens, to which, possibly, a fourth, making lantern slides and enlargements for the purpose of illustrating lectures, should be added. As to outfit, all of these requirements must be borne in mind. At the present time, possibly the best equipment for medical work would be one of Walmsley's modified copying cameras, as manufactured by the American Optical Company, taking a $4\frac{1}{4} \times 5\frac{1}{2}$ plate fitted with a first-class lens. Regarding the latter, those desiring the best might limit their choice with advantage to the lenses made by Ross, Dallmeyer, or Beck. Personal experience with the Beck lens warrants a most favorable recommendation, as its superior qualities adapt it admirably to work requiring fine definition with great focal depth. As a matter of economy, the excellent lenses of Darlot might be substituted for the higher-priced English glasses. As much less expensive, the "Waterbury" outfit (camera, lens, and tripod, costing but \$14) is worthy of consideration. The addition, however, of a light wooden extension is imperative to obtain sufficient length of bellows to reproduce specimens of a normal size—a matter often desirable. A lens adapted for medical work would be a rapid rectilinear combination of about $8\frac{1}{2}$ or 9 inch equivalent focus—a shorter focus lens possessing insufficient focal depth.

In addition to the camera and lens, a simple dark-room outfit embracing non-actinic lanterns, three trays, graduate, dust-brush, light-proof box for opened packages of plates, and a few tubes are necessary. Proper illumination is essential for satisfactory results. An evenly distributed top light is most desirable. This can be obtained readily from a skylight; such a convenience, however, is frequently wanting. An excellent substitute may be readily had by removing the apparatus to the open air and stretching over all a piece of muslin, thus providing a mellow, evenly distributed top light admirably adapted for photographing specimens. In focussing the use of a focussing glass is advantageous. Focus without the diaphragm on a point lying midway between the extremes of the planes of the specimen; afterward put in the smallest stop (say No. 128 F. = 45.2 English scale). The small stop necessitates a rapid plate unless the exposure is unduly prolonged. A fast plate and small stop, when properly employed, yield pictures with the best possible definition and great focal depth, qualities very essential to satisfactory representations of specimens.

In order to insure acceptable results a correct exposure should always be attempted. The length of exposure depends upon many conditions. Among others, actinic power of the light, this being modified by sunshine or clouds, by time of day, and by season of the year; color of the specimen—a tissue deeply dyed with blood re-

quiring much greater exposure than the alcohol-bleached organ; size of diaphragm; sensitiveness of the plate; strength of the developer. Since these all modify the duration of any individual exposure, the oft-heard comparisons as to the bare numbers of seconds given upon various negatives are of very little importance. Each worker must determine for his own conditions the exact number of seconds required on the ordinary specimens, and, with this as a basis, meet changing conditions as the occasion demands. While there are many excellent formulæ, the following developer has always answered admirably, and with it, by slight modifications, all kinds of work may be satisfactorily performed.

No. 1.

R.—Pyrogallie acid (Scherling's)	. . . . .	1 oz.
Sodium sulphite . . . . .	. . . . .	6 oz.
Water . . . . .	. . . . .	48 f℥.

No. 2.

R.—Sodium carbonate . . . . .	. . . . .	4 oz.
Water . . . . .	. . . . .	48 f℥.

No. 3.

R.—Sodium bromide . . . . .	. . . . .	1 ℥.
Water . . . . .	. . . . .	1 f℥.

Use equal parts of No. 1 and No. 2 with three to five drops of No. 3 as a normal developer, the entire bulk of the developer being, say, three fluidounces. Remember No. 2 accelerates, while No. 3 retards development; No. 1 giving density. A plate is fully developed when the deep shadows show some detail and when the cardinal outlines of the picture show on the back of the plate with reflected light. The most usual failures result from over-exposure and under-development. When a plate blackens rapidly, without the requisite amount of contrast between the high lights and deep shadows being at first present, we may strongly suspect over-exposure. Pour off the developer, flood with water, and then proceed once more with a developer to which say twenty to thirty drops of No. 3 have been added. The remedy for under-development is evident. Strongly to be emphasized—select a good brand of plate, choose a reliable developer, and only change when there exists a strong reason for so doing; by this plan alone can the peculiarities and valuable qualities of any plate be learned. In addition to these fixed conditions, by at first employing but one lens and a single diaphragm, the path of the tyro is greatly smoothed.

In photographing a patient, if possible a skylight should be used; when, however, none exists we can succeed fairly in any well-lighted room, preferably one having two side windows. Opposite to window No. 1 and about four feet removed we place our subject almost parallel—facing the second window. The lower half of window No. 1 is covered with muslin, while over the upper half is partly drawn the shade. Window No. 2 (furthest removed from the patient, but toward which he looks) is unobstructed. The camera is placed somewhere near the second window. Some simple background should be improvised and the darker side of the subject should be lighted up by a reflector of white muslin. Since the actinic power of light is immensely reduced within doors our exposure would be unduly prolonged if we used the smaller diaphragm; we are

therefore usually compelled to use the larger ones—Nos. 8 or 16.

Photographing microscopical specimens requires a camera with a long bellows—twenty-four to thirty inches. This may be had by adapting to the front of an ordinary camera an extension, which may be readily constructed of wood, cardboard, or tin. The inner surface of the entire track of the light from the objective should be lined with black paper with matt surface. Any microscope admitting of a horizontally placed tube, with a good stage and centring substage may be employed. Likewise any objective possessing good definition and flat field may be used. The eye-piece is best removed, the camera and microscope being united by simply inserting the draw-tube into the extension of the camera and wrapping the joint with a few turns of some black fabric.

Illumination is very important: Four sources may be considered—lamp, calcium, electric and sunlight. Calcium and the arc electric lights, while quite satisfactory by way of experiment, are practically debarred by the expense and inconvenience attending their use. The incandescent electric light, at the present time, offers little advantage over good lamplight, and is far inferior to sunlight. It may be stated, once for all, that sunlight properly employed is the best possible illuminator for photomicrography. As it requires some care in its employment, and, above all, the devotion of the busiest hours of the day, we may inquire what can really be accomplished by lamplight. Mature consideration and considerable experience justify me in saying that with care and proper manipulation really good photographs may be made with powers up to the one-sixth; of course, very much higher lenses may be employed—even the one-fifteenth and one-sixteenth, but thoroughly satisfactory lamplight work with lenses approximating 1000 diameters is seldom if ever seen. One thing seems demonstrated beyond question, that with any power it is almost impossible to obtain the soft but brilliant micronegative, full of detail and vigor, that sunlight is capable of yielding. For lamplight a lamp with a single moderately broad wick should be employed, the edge of the flame being turned toward the object.

For very low powers, three to one and one-half inches, no condensing lens is necessary. With higher powers, the interposition of a four-inch focus plano-convex lens is advantageous, and with still higher lenses (say from the two-thirds up) some form of substage condenser in addition is almost imperative. After many experiments with various forms, a "B" eye-piece as a condenser seems to yield the best results, giving a powerful and evenly distributed illumination. Accurate centring and even distribution are of the utmost importance. First centre the substage condenser. Avoid "pushing" the illumination, as when the condenser is racked too high the margin of the field is distorted. Experience teaches the advisability of using a slow "clean-working" plate (say Carbutt's "B") in preference to the very rapid brands. A mirror placed at the end of the work-table opposite the ground glass of the camera is of great assistance in adjusting illumination; a small hand glass is also convenient to reflect the picture when hunting fields. The most important, as well as difficult, manipulation is focussing. With a short "pull" no especial requirements, but when a long camera is extended, removing the

ground glass to three or four feet, some arrangement of moving adjustments is necessary. The simple arrangement with cord and weights, which I devised eight years ago, and which has of late become extensively used, is recommended as meeting all possible requirements. It has been put to the severest tests with powers of over 3000 diameters, and never has been found wanting either in delicacy or accuracy. A modification may be applied to the coarse adjustment. A focussing glass is indispensable. The point of most accurate focus is where the image seems to meet into the ground glass. Preparations must be well differentiated and thin, possessing sufficient contrast and actinic opacity. In certain cases, by using glass of a complementary color to the stain, excellent results are obtained. While lamplight suffices for low powers, for the high powers and for difficult work, such as bacteria, sunlight is by all odds to be preferred. By arranging a simple mirror to swing laterally and vertically, we can obviate the necessity for a heliostat. Light from this mirror passes through a plano-convex lens of eight inches focus, through a cell of ammonio-sulphate of copper, to the substage condenser. Here, again, accurate centring and evenly distributed illumination are absolutely essential for good results. To those aspiring to the best results, especially with difficult subjects and high powers, a trial of sunlight is strongly urged, as by this illumination alone are many of the capabilities of photomicrography rendered possible.

Succeeding his address, the lecturer exhibited on the screen about fifty examples of various kinds of work. Nearly half of these were photographs of pathological specimens; the remainder were photomicrographs of histological and pathological preparations, taken with objectives giving from the lowest to the highest amplifications, among which an admirable photograph of the *Bacillus tuberculosis* attracted much attention.

SOCIETY OF MEDICAL JURISPRUDENCE AND STATE MEDICINE, NEW YORK.

Stated Meeting, June 10, 1886.

DR. E. C. SPITZKA read a paper on

THE ATTITUDE OF LEGAL MEDICINE VERSUS HYDROPHOBIA.

He did not think there is another branch of inquiry in which time-honored tradition, erroneous observation, ill-balanced reasoning, and immature theory play so large a part as in that relating to the transmission of rabies from animals to man. While his experience with spurious hydrophobia was considerable, it was infinitely small with the real disease. Indeed, he remarked, he would say *ni!*, but that he wished to avoid discussing a question both sides of which are represented by able thinkers and observers, viz., whether there is such a thing as genuine hydrophobia in man, due to transmission from lower animals, and to nothing else.

He then announced the following propositions as embracing the points maintained in the preliminary part of his paper:

1. There is, at present, no proven epidemic of hydrophobia either in New York City or its vicinity.
2. A number of deaths have occurred from spurious

hydrophobia (lyssophobia), in New York City and its vicinity during the past nine months.

3. The agitation of the subject of Pasteur's method of preventive inoculation for hydrophobia, and the accompanying strained accounts of suffering and death from that disease, are responsible for these deaths.

4. To prevent the serious and oft-times fatal imaginary disease, it is necessary to inculcate a healthy public sentiment, which shall frown down the agitation of questions which are of a strictly scientific character by persons who are neither biologists nor physicians, and who have no other motive than the creation of a sensation, regardless of consequences.

5. It should be strictly inculcated on all officers intrusted with the preservation of the public peace and public health, that the only way to determine whether a dog is suffering from rabies or no, is to submit him to inspection by competent veterinarians in a living condition. The desirability of some such ordinance is attested by the fact that persons on the road to death from hydrophobia have recovered on learning that the dog which bit them remained alive and well.

6. The results of researches on hydrophobia should, for the present, remain within the domains of technical literature. There are so many problems connected with the question of rabies which are as yet, and promise to remain for some time, unsettled, that it would be tantamount to criminal recklessness prematurely to publish alarming discoveries in the lay press.

7. The method of demonstrating rabies by direct inoculation of the brain is fallacious. The conclusion drawn by Liautard, from an experiment thus performed, that the Riverdale dog was mad, was obtained by misleading methods.

8. The means to be adopted to prevent future outbreaks of spurious hydrophobia is to muzzle the dogs, to dam up the torrents of ink flowing from the pens of hasty investigators within appropriate receptacles, and to exclude sensational publications from the household.

Canine pathology would hereafter prove an easy science to master, since it would consist of but one simple syllogism, viz.: All symptoms of canine disease are symptoms of hydrophobia; all dogs presenting such symptoms should be destroyed; hence, for all such dogs there is but the remedy of the bullet or the policeman's club. Dr. Spitzka referred to the history of the so-called epidemic that had prevailed since the "needless wanton and wicked agitation of the matter which was begun a few months ago." For a week after the announcement was made relative to the Newark epidemic, several scores of cases of hydrophobia were reported from every part of the country; and he asked if a single case of the kind could be remembered in which an attempt meriting the adjective scientific—indeed, any attempt whatever—was made to verify the existence of the disease, and where it was really verified.

He then took up a number of the cases which he said had been published far and wide, with the deliberate and malicious purpose of causing a sensation; and stated that he would show that the result was the production of imaginary disease, real alarm, real suffering, and something else which was sufficiently real, viz., death. In regard to the Newark cases he said: A dog had bitten a number of other dogs, as well as six children. The transgressor was killed, in accordance with

the time-honored custom of hanging such criminals first, and trying them afterward. Four of the children were sent to Pasteur, and two remained in Newark; while the bitten dogs were locked up where they could do no harm, but, on the other hand, where it could be determined whether they had really been inoculated with hydrophobia or not. The result proved that they had not, and the two children who did not go to Paris remained as well as the others; showing that in this case, at least, the alarm had been a false one.

In speaking of the case of George Neall, the Newark pound-keeper, he said that it seemed that for several days—that is, during the entire time of his illness—he obtained no drink, and ate nothing except an apple. Dr. Spitzka stated that it was evident that the man was under the dominion of a terrible fear from the fact that he got up shortly before his death, walked into the kitchen, placed his head in a pail of water, and had a spasm, in consequence, which lasted half an hour; and he then asked whether starvation, depressing neurotic remedies, and terror were without an effect on this patient's vitality.

Animals, he said, are liable to become insane, as men do, from various causes and in various ways; and he had hoped to exhibit to-night an insane cat, the pet of a friend, which had been shot in the head. In Japan, as Professor Law informed us, the boys produce what is supposed to be rabies by administering a certain fungus to dogs. He believed the number of persons reported as dying of hydrophobia almost simultaneously with the agitation of the subject of Pasteur's method, but who had been bitten between nine months and nine years before, would be found to reach a hundred or more.

The ablest review which had yet been made of the subject of spurious hydrophobia was by Dulles, of Philadelphia. He showed that this condition might result from (1) disorders of the stomach, especially in very young children, as well as from inflammation of the œsophagus and stomach in adults; (2) disorders of the respiratory apparatus; (3) disorders of the circulatory apparatus; (4) systemic conditions, such as rheumatic fever, gout, uremia, intermittent fever, mercurialization, and pregnancy; (5) disorders of the nervous system: meningitis, pachymeningitis, tumors, and parasites of the brain, simple neuritis, acute mania, delirium, alcoholism, tetanus, hysteria, and narcotic poisoning. He then related three cases which he said he was able to add to the instances collated by Dr. Dulles, where symptoms commonly or erroneously regarded as hydrophobia were present. The first was one of epileptic delirium, which he saw in consultation in Williamsburgh, and the report of which he had published in the *New York Medical Record*. The second was one of typhus fever, which was sent to the Presbyterian Hospital, New York, and which, on account of the character of the delirium present, was supposed to be one of hydrophobia. The third case, one of disseminated sclerosis, described by Pollak, he quoted from the *Archiv für Psychiatric*. Dr. Spitzka considered the resemblance between the spurious hydrophobia and the so-called real affection so great that he could not criticise any one for believing, with Dulles, that the existence of a genuine hydrophobia in man is not proven; and by way of corroboration subjoined some extracts from an article

in Pepper's *System of Medicine*, the author of which is a believer in the reality of hydrophobia.

Later he referred to the fact that a "Pasteur Institute" had been organized in New York, and said that he believed he was doing that institution no injustice when he said that the more hydrophobia scare could be created in the community the better it would flourish. It rests, for the present, on two foundations: First, on a rabbit, brought over from Paris, which had been inoculated by Pasteur; and, secondly, on the allegation that hydrophobia now exists in New York City. Inasmuch as one of the incorporators of the Pasteur Institute (Dr. Liautard) had contributed to the public alarm on this question, by the published autopsy on one dog, and of an experiment on another, he preferred to present for consideration certain facts which he thought would not be gainsaid by any of his medical friends, and to bring before the Society some animals to which these observations related. The brains of one or two of these would be removed, and those present could examine both the living and the dead subjects, so that they could themselves test the correctness of his conclusions.

Dr. Spitzka then proceeded to quote from the report of the Morosini case prepared by Dr. Liautard, of the *American Veterinary Review*, as published in the *New York Herald*. Miss Morosini was bitten on April 14. The dog was killed almost at once, and on the same day was sent to the Veterinary College. Dr. Bulkley (the attending physician in the case), requested that a post-mortem be made as early as convenient, as it was a matter of the greatest importance. The post-mortem was begun without delay, and there were revealed important lesions: congestion of the fauces, empty condition of the intestinal tract, which was slightly congested, stomach containing one large bird feather, the kidneys somewhat congested, and the bladder empty, retracted, and somewhat congested. These symptoms were considered sufficient evidence, with the history of the case, to justify a diagnosis of rabies. A report to that effect was made to Dr. Bulkley, and it was urgently advised by Dr. Liautard that the injured young lady should go to Paris as early as possible and place herself under M. Pasteur for treatment. Then it was decided at once to try cerebral inoculation, as carried out by M. Pasteur, to confirm the diagnosis.

The brain and the medulla of the dog having been carefully kept, another dog was secured for inoculation on the following morning. After placing the dog under complete anaesthesia, the cranium was trephined a little on one side of the median line. The dura mater was then carefully divided, and a little of the medulla of the first dog placed over the cerebrum of the second. The edges were brought together by sutures protected by wadding and collodion, and the animal was placed in a secured kennel for observation. He recovered from the anaesthetic, ate well, and the wound healed slowly; presenting apparently nothing abnormal. On April 30, however, the dog appeared to be more affectionate to those who were caring for him, and also to the house-surgeon who watched him. On May 1, the sixteenth day after the inoculation, the patient showed the first symptom of dumb rabies, paralysis of the lower jaw. The mouth was slightly open, the jaw hung down, and abundant saliva flowed from the mouth. The next day the lower jaw became more paralyzed, and the animal

was weak and tottered in his gait; paraplegia now showed itself. The dog died on the 2d, and at the autopsy the following lesions were found: Pharynx highly congested and containing considerable foreign matter, such as hay and straw; the stomach also highly congested. In it were found the same foreign substances seen in the pharynx; the intestines were empty, and the bladder empty and retracted.

So far as Dr. Liautard's diagnosis of rabies in the dog that bit Miss Morosini was concerned, Dr. Spitzka said that he had to state that as assistant to Professor Henry Draper, at the University of New York, he had had the opportunity of examining scores of dogs brought into the laboratory, and that not one of them ever showed any signs of rabies. On the contrary, they exhibited that docility and affection which, under the circumstances, are the most touching characteristics of the animal. There was scarcely one, and certainly not one young dog, in the stomach of which he did not find more or less foreign material. This became a subject of comment in the laboratory, and it was supposed to be a satisfactory solution of the problem that intestinal worms were found in large numbers in those dogs which had the largest and strangest assortment of foreign bodies in their stomachs. A cat, which had a similar collection, contained three tapeworms. The feather in the stomach of the dog which bit Miss Morosini, therefore, went for nothing. As to the congested kidneys, congested fauces, and empty bladder, he would simply ask how the fauces, kidneys, and bladder would appear of a man who had been hunted for several hours by a large crowd armed with shotguns and pitchforks.

With regard to the "dumb rabies" which Dr. Liautard thought he had produced in the second dog, every one familiar with the researches of Schiff, Flourens, Hitzig, Fritsch and Goltz would recognize in it the ordinary results of experimental and inflammatory disturbance of the brain functions in the dog. According as the irritating injection affected one cortical field or another, the paralysis would vary; but paraplegia is quite characteristic of meningitis and encephalitis in the dog. In order to show that the symptoms of hydrophobia, as Dr. Liautard considered them, could be produced in healthy dogs by introducing non-rabic foreign substances into their skull cavities, he had performed experiments on six dogs, the details of which he now proceeded to present. In the first the cranium of a mongrel bulldog was trephined May 29, and, after incision of the dura mater, six cubic millimetres of the spinal cord of a healthy calf, slaughtered about twenty-eight hours before, introduced in the brain substance. On June 2 there was manifest paralysis of the hind legs, with considerable fever. The eyes were dull, and there was ptosis. The disposition of the animal was exceedingly friendly. The wound was granulating and discharging healthy pus. In the second dog, a mongrel Spitz, on May 29, a button of bone was removed in the right temporal region, and some of the same material used in the last experiment was introduced in a comminuted form. On June 2 it was noticed that there were some paralysis and ataxia of the hind legs. It showed a marked tendency to fawn, instead of its naturally aggressive disposition.

The third dog, a large mongrel black-and-tan, was trephined June 2 about one inch from the median line,

and through the opening twenty drops of an emulsion of a calf's cord were slowly injected by a hypodermic syringe into the brain. This was followed on June 5 by paralytic and ataxic symptoms, which were more marked on the left side than the right. On June 2 a fourth dog, a mongrel collie of vicious disposition, was operated on in the same way as the last, except that the material injected was an emulsion prepared from the pons and cerebellum of a patient who died of hydrophobia on May 14, whose brain he obtained through the courtesy of Dr. Paul H. Kretschmar, of Brooklyn. This was injected into the parietal region, and—by calculation—into the thalamocrural region. On June 6 there was some doubt as to whether there was any weakness of the hind-quarters or not. At that date it was the liveliest of the four dogs, and fed best.

In the fifth dog a slit was made in the dura mater, after trephining, and a piece of common yellow soap of the size of fifteen cubic millimetres introduced between the dura and pia. In the sixth, ten drops of horse's stale urine were injected into the brain substance of the posterior region. This animal had a glandular and suppurating swelling in the inferior nuchal region.

Dr. Spitzka then put the following questions: 1. Is there any symptom of hydrophobia related of Dr. Liautard's animal which is not present in those dogs inoculated with the spinal cord of a calf, with soap, and with putrescent fluid?

2. Are the mental disturbances resembling those of dumb rabies, so-called, not much greater in the dogs exhibited to-night than appears in the account of Dr. Liautard's dog?

3. Would it not have been well to perform such experiments as those of which the result is shown to-night at the same time, or before attempting to make of the inoculation of the brain a test of hydrophobia, and alarming the public?

4. Is it wise, in view of the bad effect which the knowledge that the dog which bit a person was mad has on that person's mind, to make this announcement in such a shape that it must reach him or her?

5. What reason had Dr. Liautard or his house-surgeon for omitting an examination of the brain in the case cited, or, if they made it, for failing to publish its morbid appearances?

Dr. Spitzka said he had been thus lengthy in detailing the faulty nature of the evidence on which an epidemic of hydrophobia might be announced, and in demonstrating that mere terror and expectant attention are the chief factors in the spread of the disease, because the practical problem with which legal medicine has to deal is not so much the prevention of a genuine, as of a more or less artificial disorder. Inasmuch as the same measures which would check the spread of the real disease—if it existed—would also, and as effectually, check the ravages of that terro-psychosis known as hydrophobia, we might deal with both together. The bite of any animal, or even of men, suffering from febrile disorders, excitement, tetanus, or blood-poisoning is more or less dangerous; and undoubtedly many of the sequelæ of such bites have been summed up under the general caption of hydrophobia. Whatever theory we adopt, it is the duty of the community to protect its members not only against the more or less venomous bites of such animals, but against intrinsically harmless

bites. Historically speaking, the system of muzzling dogs has been found so efficacious that it is strange that it has not been universally adopted.

Having given some statistics on this subject, and stated that the plan of muzzling has been adopted in England, he remarked that everything, of course, depends on the manner in which the law is enforced. If, as is only too likely in our own community, the persons entrusted with its execution are selected from the worst class of ruffians, and their pay made dependent on the number of dogs they can steal from their owners, and the amount of blackmail they can levy through such acts, the public will become disgusted with the law, and those evading it will be supported, instead of condemned, by public opinion. Another precaution, which has been almost uniformly neglected on this side of the Atlantic, is the proper observation of suspicious dogs. There is no evidence so good as that obtained from the living subject of rabies. In addition, much suffering, and, indeed, many deaths, may be prevented by the discovery that a dog which had bitten is not mad; and that can be determined with certainty only by keeping the animal alive.

With regard to the recognition of a Pasteur institute as a factor in the legal enactment of measures to prevent hydrophobia, he quoted the following passage from the *Deutsche medicinishe Wochenschrift* of April 29, 1886, which coincided entirely with his own opinion: "Attention has been repeatedly directed in this journal to the fact that the method of Pasteur cannot be unreservedly accepted as an established one, and that the foundation of Pasteur institutes is premature until the method of preventive inoculation be placed on an absolutely fixed basis, which, in view of the large number of experiments on animals and inoculations made daily in Pasteur's laboratory, will presumably be effected in a not unduly remote period. It were high time, indeed, that we left behind us the stage of newspaper reports, which for some months have furnished nothing new beyond the daily increasing number of those inoculated and the deaths, and replaced the present monopolization of the matter by the coöperation and critical proof-tests of competent observers."

One of the dogs inoculated by Dr. Spitzka died the day before the meeting, and the autopsy revealed the presence of well-marked meningitis, while another, the bulldog inoculated with a portion of the spinal cord of a calf, was dispatched in the presence of the audience. The autopsy in this instance, which was made immediately after death by Dr. N. E. Brill, showed the animal to have been suffering from hemorrhagic encephalitis.

DR. DULLES, of Philadelphia, expressed himself as extremely sceptical in regard to the existence of such a disease as true hydrophobia. If there was such an affection, he thought that Dr. Spitzka had produced it with simple inoculations of matter not derived from rabid subjects. He believed that fifty years from now the specific theory of hydrophobia would have as few adherents as the doctrine of witchcraft has at the present day. The patients suffering from so-called hydrophobia may be divided into three classes: first, those affected with a variety of diseases giving rise to symptoms of a similar character to those described as belonging to rabies, such as tetanus, for instance; second, those

having certain affections of the mind, such as mania and other forms of insanity; and, *third*, those suffering simply from fright.

DR. DADIRRIAN, formerly of Constantinople, gave an amusing account of the dogs of that city, and said that, although these animals are so numerous, hydrophobia is practically unknown there. It is true that in the popular mind there is some dread of the disease, and that occasionally persons die from the bites of dogs; but he did not think there were any genuine cases of rabies.

DR. H. E. BRILL read a short paper, the purport of which was to throw discredit and ridicule upon Pasteur's work.

DR. KRETSCHMAR said that, however sceptical one might be in regard to this matter, he thought that if the sceptic were called upon to treat a *bona fide* case of the disease, as he had recently, he would be convinced that it had a very positive existence. In this instance he did not know that the patient had been bitten at all until within a few hours of his death, and supposed that the man was suffering from spasm of the glottis; while the man himself was not at all the victim of fright, and at one time in the course of the attack, when he had been rendered comparatively comfortable by morphia, felt confident that he would recover.

DR. H. M. BIGGS, of the Carnegie Laboratory, said that while Pasteur had not, in his opinion, as yet positively demonstrated the correctness of his views, he thought that he had done enough to show that there was a strong probability of their being substantially true. Excluding the Russian patients, who had been bitten by wolves, there were but two cases out of over nine hundred in which hydrophobia had occurred in those who had been inoculated after being bitten by animals supposed to be rabid; and there are certain circumstances connected with both of these which render them of such a character as not to invalidate the protective power of the inoculations under suitable conditions. Pasteur had devoted six years of arduous study to this subject, and if it were not hydrophobia that he was dealing with, it must be some new disease, the existence of which had hitherto been unknown, since there was no form of septicæmia which had an invariable period of incubation, this period being of definite duration in both dogs and rabbits, and being entirely different in the two kinds of animals.

As to the Newark children, while it had not positively been demonstrated that the dog which bit the children had true rabies, it seemed to him highly probable that he had, since he acted precisely in the manner described in the books as characteristic of rabid dogs. Thus, he ran for a distance of about three miles, snapping and biting at everything that came in his way. He had learned, on the highest authority, that it was not known certainly whether the dogs which were kept under observation afterward, had really been bitten or not. At the end of two or three months, no symptoms of rabies having developed in any of them, they were all killed except one, which was returned to its master; and it was a significant fact that ten days after it was released from confinement it was seized with the characteristic symptoms of rabies, and died. While it was true that the two children which had remained at home were as well to-day as the four who were inoculated by Pasteur,

he had positively ascertained that in the case of one of them there was only a very slight abrasion produced by the dog, and that in the other there was not even as much as this. The skin was entirely unbroken, as the boy was protected by a heavy overcoat, in addition to other winter clothing.

He had been called, in consultation, to see Neall, the keeper of the dog-pound in Newark, who died a short time since of supposed rabies, and had agreed with those in attendance that the case was probably a genuine one of the disease. The inoculations which he had made with specimens of the brain and spinal cord of this patient had, however, proved entirely negative in their results; and, therefore, he was forced to the conclusion that a mistake in diagnosis had been made in this instance. As to the inoculations of dogs made by Dr. Spitzka, and described in his paper, the results obtained were of no value whatever, and he felt called upon to express his emphatic protest against the whole tone and drift of the proceedings this evening. In other fields Pasteur had accomplished such splendid results, and done such admirable scientific work, that he thought that his present researches should not be condemned, until they had received a more thorough investigation than it had as yet been possible to make in regard to them.

CORRESPONDENCE.

AMERICAN COMMITTEE ON THE NOMENCLATURE OF MENTAL DISORDERS.

To the Editor of THE MEDICAL NEWS.

SIR: In connection with the notice in THE MEDICAL NEWS of June 5, 1886, on the subject of the resolution passed at the late International Medical Congress at Antwerp, referring to the subject of "Mental Disorders," I would beg to state that a communication was received at the February meeting of the Medical Jurisprudence Society of Philadelphia, asking that body to coöperate with the International Congress in this matter.

Action was taken, and the Society appointed Professor H. C. Wood and Dr. Charles K. Mills as a committee to act conjointly with Mr. Clark Bell, the editor of *The Medico-Legal Journal*, forming the American representatives of the International Congress.

The object of this committee is to assist the Congress in the collating of international statistics of the insane and the discussion of the best basis thereof, as well as the classification and nomenclature of mental diseases.

G. MILTON BRADFIELD, M.D.,

Recorder of Medical Jurisprudence Society of Philadelphia.

June 10, 1886.

CHRONIC INFLAMMATORY DISEASE OF THE UTERINE APPENDAGES.

To the Editor of THE MEDICAL NEWS.

SIR: I should be obliged to you if you would allow me to make a few comments on the paper read by Dr. Henry C. Coe, before the New York Academy of Medicine on April 1st.

Dr. Coe says, "that during the three years that have elapsed since Tait called special attention to this condition," upon which I wish to say that it is more than

ten years since I drew attention to chronic inflammatory disease of the uterine appendages. Dr. Coe makes me say, "that in chronic disease of the ovaries the tubes are always affected." I cannot find that I have ever said anything of the kind. If I have done so, I should be glad if Dr. Coe would give me the reference, in order that I may correct it, for it certainly must have been said in the earliest days of my experience, and probably with some qualification in the context which has escaped Dr. Coe's notice.

The third and most important comment which I wish to make is, that I do protest against Dr. Coe, or anybody else, calling a thing "Tait's operation," against which I have uttered my protest endlessly. I need no more than call attention to the last protest which I have made in this direction, in an address delivered before the Medical and Chirurgical Society of Edinburgh: "*Normal ovariectomy* is an operation requiring no skill, little experience, and hardly any judgment, and therefore has been extensively, and, I fear, somewhat indiscriminately, practised. I have protested again and again against it; yet many, whose voices are no louder against it than my own, blame me for it, accuse me of doing it, and generally get confused over the whole subject. I desire once more to say that, save when the seat of such organic disease as will explain genuine suffering, the uterine appendages ought not to be removed; and that those who attribute all the pelvic aches and ails of women to the ovaries and tubes, and rush in to remove them, are dangerous people. I do not say they are dishonest, but I say they are misguided. This kind of laparotomy epidemic is no worse, however, and certainly not more harmful, than the tenotomy epidemic which spread all over the world when Dieffenbach first introduced his brilliant and serviceable operation. Every oblique eye was made more oblique on another axis, and many clubfeet were hopelessly destroyed; results to be deplored, but common enough in all instances of human progress. New things—especially new drugs—are always done to death; and I greatly fear that indiscretion with such a new drug as chloral has done more harm than all the surgical indiscretions collectively."

Surely this is language strong enough not to be misunderstood. The removal of the appendages in cases where they ought to be removed is far too difficult an operation to be undertaken either by a novice or by one whose practice is this special department of surgery has not already had an extended field. No operation is more difficult than one which ought to be undertaken in a proper case. There can be little doubt that the tendency of the discussion to which I allude will be to do good in one direction by condemning indiscreet and ill-considered operations; but I fear it may do harm in the other by leading people to believe that proper cases for operative treatment are not common, whereas they are indeed very common in every large centre of population. I am, sir, yours, etc., LAWSON TAIT.

BIRMINGHAM, June, 1886.

NEWS ITEMS.

MONTREAL.

(From our Special Correspondent.)

NEW APPOINTMENTS IN MEDICAL FACULTY OF MCGILL UNIVERSITY.—Dr. Richard MacDonnell has

been appointed Professor of Hygiene and Dr. T. Wesley Mills, Professor of Physiology.

Dr. Arthur A. Browne having resigned the Chair of Midwifery, Dr. J. C. Cameron has been appointed in his place.

MATERNITY HOSPITAL.—It is expected that before another session has passed, a new University Maternity Hospital will be built, the old one having become too small for the requirements of the school.

COLLEGE OF PHYSICIANS AND SURGEONS OF ONTARIO.—The Council of the College met in Toronto, June 6th, and elected the following officers: President, Dr. H. H. Wright, of Toronto; Vice-President, Dr. Henderson, of London; Registrar, Dr. Payne. The retiring President, Dr. Bergin, M.P., gave an address in which he stated that the profession was overcrowded, and strongly advised that the standard of qualification should be raised. He suggested that the Council should take measures to compel the Imperial Government to carry out the pledges it has made to the Government of Canada, viz., that Canada should have the regulation of her own medical affairs, and that British legislation should not qualify men to practise in Canada.

A MEDICAL SCHOOL IN WHEELING.—It is proposed that the Medical Department of the Virginia State University be hereafter located in Wheeling.

HONORS TO DR. HOLMES.—Cambridge is about to confer upon Dr. Oliver Wendell Holmes the honorary degree of Doctor of Letters. It is also stated that Dr. Holmes will shortly pay a visit to Oxford, as the guest of Professor Max Müller.

SIR WILLIAM JENNER has been re-elected President of the Royal College of Physicians.

AN ENGLISH POST-GRADUATE SCHOOL.—A proposition to establish a Post-Graduate Medical School in London, England, is being agitated.

THE CONTAGIOUS DISEASES ACTS of Great Britain, by which prostitution was regulated in a number of the garrison and seaport towns, have been repealed by a vote of 245 to 131. The *Lancet* expresses regret at the repeal, and says that henceforth "disease and immorality in their most revolting forms are to riot in the midst of our garrison towns."

THE 120TH ANNUAL MEETING OF THE STATE MEDICAL SOCIETY OF NEW JERSEY was held at Sea Girt, on June 9th. The following officers were elected:

President.—Charles J. Kipp, M.D., of Newark.

Vice-Presidents.—John W. Ward, M.D., of Trenton; H. G. Taylor, M.D., of Camden; B. A. Watson, M.D., of Jersey City.

Corresponding Secretary.—William Elmer, Jr., M.D., of Trenton.

Recording Secretary.—William Pierson, Jr., M.D., of Orange.

Treasurer.—W. W. L. Phillips, M.D., of Trenton.

Standing Committee.—T. J. Smith, M.D., of Bridgeton; E. J. March, M.D., of Paterson; and D. C. English, M.D., of New Brunswick.

The next meeting will be held at Beach Haven June 10, 1887.

DEATH OF DR. G. G. KINLOCH.—On June 7 Dr. G. G. Kinloch, a son of Dr. R. A. Kinloch, of Charleston, was fatally injured in a railroad accident. Dr. Kinloch was a gentleman of high culture and professional attainments, and his loss is deeply felt by all who knew him.

CREMATION IN FRANCE.—The French Chamber has just adopted, by a vote of 323 to 180, the following modification of the existing law regarding *liberté des funérailles*:

"Any adult or free minor, capable of being a testator, may freely determine the mode of his sepulture. He may elect inhumation or incineration, may will his body or any part thereof to institutions of public instruction or to learned societies, and may regulate the conditions of his funeral, notably in regard to its civil or religious character."

The next meeting of the Canadian Medical Association will be held in Quebec, on August 18th and 19th.

A CHAIR OF EVOLUTION.—HERR PAUL VON RITTER, of Basle, has left to the University of Jena the sum of 300,000 marks (£15,000), the interest of which is to be applied solely to the promotion of the study of phylogenetic zoölogy, according to the doctrine of Darwin, of which Professor Hæckel, of the above-named university, is an able exponent. Of the above-named sum, 130,000 marks are to be received at once, and the remainder on the death of the testator. Professor Hæckel proposes to apply a portion of the money to the foundation of a new extraordinary professor of zoölogy, to be called the Paul Ritter Professorship.

A FLOATING GRAVEYARD.—A very singular and troublesome condition of affairs is reported from Kansas City. For the past six years, the pest-houses for the reception of smallpox patients have been located upon an island in the Missouri River. From the associations, this island has received the uncanny, but somewhat suggestive name of "Pest-house Island." Here were buried thirty-five corpses of persons who have died from smallpox during the past six years. By a change in the course of the river, a not uncommon thing for the erratic streams of the west, the entire graveyard has been washed away, and the coffins containing the remains of thirty-five smallpox victims are now gently floating down the waterway to the Gulf of Mexico. The authorities were powerless to prevent this occurrence. The fact that the water-supply of St. Louis, and other towns of less pretensions, comes from water with which the muddy Missouri mixes, lends a dangerous spice to this romantic story.

THE LARGEST SEWER IN THE WORLD.—It is said there is now being built in Washington, D. C., a sewer which is larger by seven feet than any other sewer in the world. In its smallest part it is larger than the largest of the sewers in Paris. For over 2000 feet it is a circular sewer of 22 feet in diameter. There is connected with it a sewer of 5000 feet, or nearly one mile in length, of 20 feet in diameter. A fully equipped palace-car, locomotive and all, could be run through it without difficulty. This enormous sewer is intended to drain the immense watershed lying to the north of the

city. Besides that, it will carry to the eastern branch of the Potomac all the contents of the smaller system of sewers in the northern part of the city. It will take probably a year to complete the work. The Boundary Street sewer, with its connecting systems, will cost when completed over \$700,000.

DEATH OF A PATIENT OF M. PASTEUR.—A telegram, dated Paris, June 7, states that on that day a farmer from Roumania died of hydrophobia while under treatment by M. Pasteur. The Roumanian was bitten by a rabid dog on May 11, and reached M. Pasteur on May 25. After he had been under treatment several days he exhibited symptoms of hydrophobia on Saturday last and suffered the agonies of rabies for nearly forty-eight hours before death relieved him. This man's death and all the circumstances attending his case are held to upset the theory about the incubation period of hydrophobia, for the farmer was under M. Pasteur's treatment for a long while before the expiration of the time heretofore deemed requisite for the poisonous saliva to obtain control of the victim's system.

NOTES AND QUERIES.

THE DIAGNOSIS OF THE SEAT OF INTESTINAL OBSTRUCTION.

To the Editor of THE MEDICAL NEWS.

SIR: In THE MEDICAL NEWS of May 29, 1886, page 602, is a note on "Laparotomy for Intestinal Obstruction." Could not a competent ileo-caecal valve account for the collapsed condition of small intestines, even when the seat of stricture is seated in the sigmoid flexure?

Yours very truly,

JUDSON DALAND.

PHILADELPHIA, June 1, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING JUNE 14, 1886.

MEAD, F. W., *Passed Assistant Surgeon*.—Granted leave of absence for twenty days, June 9, 1886.

GUIERAS, JOHN. — *Passed Assistant Surgeon*.—Granted leave of absence for thirty days, June 14, 1886.

WATKINS, R. B., *Assistant Surgeon*.—Granted leave of absence for thirty days, June 4, 1886.

PETTUS, W. J., *Assistant Surgeon*.—To proceed to Charleston, S. C., for temporary duty, June 11, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JUNE 8 TO JUNE 14, 1886.

BLENCOWE, E. FRYER, *Major and Surgeon*.—Sick leave of absence still further extended six months, on surgeon's certificate of disability.—S. O. 131, A. G. O., June 7, 1886.

TILTON, HENRY R., *Major and Surgeon*.—Ordered for duty as Post Surgeon, Presidio of San Francisco, Cal.—S. O. 38, Department of California, June 1, 1886.

WATERS, WM. E., *Major and Surgeon*.—Ordered from Department of the East to Department of Columbia.—S. O. 133, A. G. O., June 10, 1886.

MERRILL, JAS. E., *Captain and Assistant Surgeon*.—Ordered from Columbus Barracks, Ohio, to Department of Columbia, to take effect upon the expiration of his present leave of absence.—S. O. 133, A. G. O., June 10, 1886.

ROBINSON, SAMUEL Q., *Captain and Assistant Surgeon*.—Ordered from Department of Columbia to Department of Texas.—S. O. 133, A. G. O., June 10, 1886.

OWEN, WM. O., JR., *First Lieutenant and Assistant Surgeon*.—Ordered from Department of Columbia to Department of the East.—S. O. 133, A. G. O., June 10, 1886.